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O·A·C REVIEW

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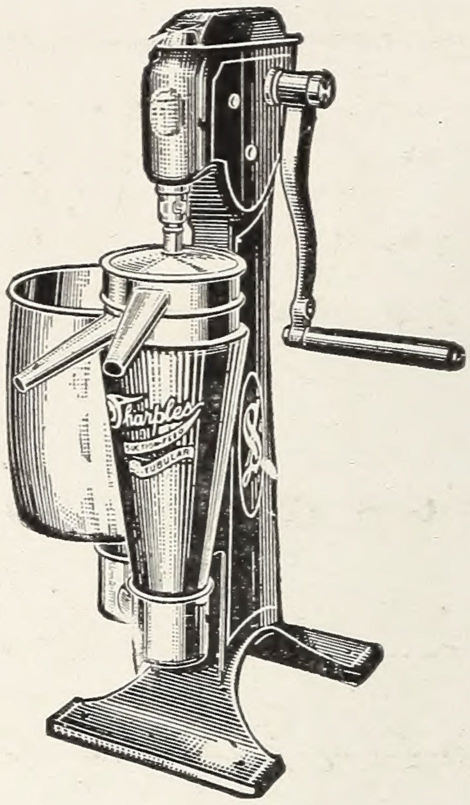

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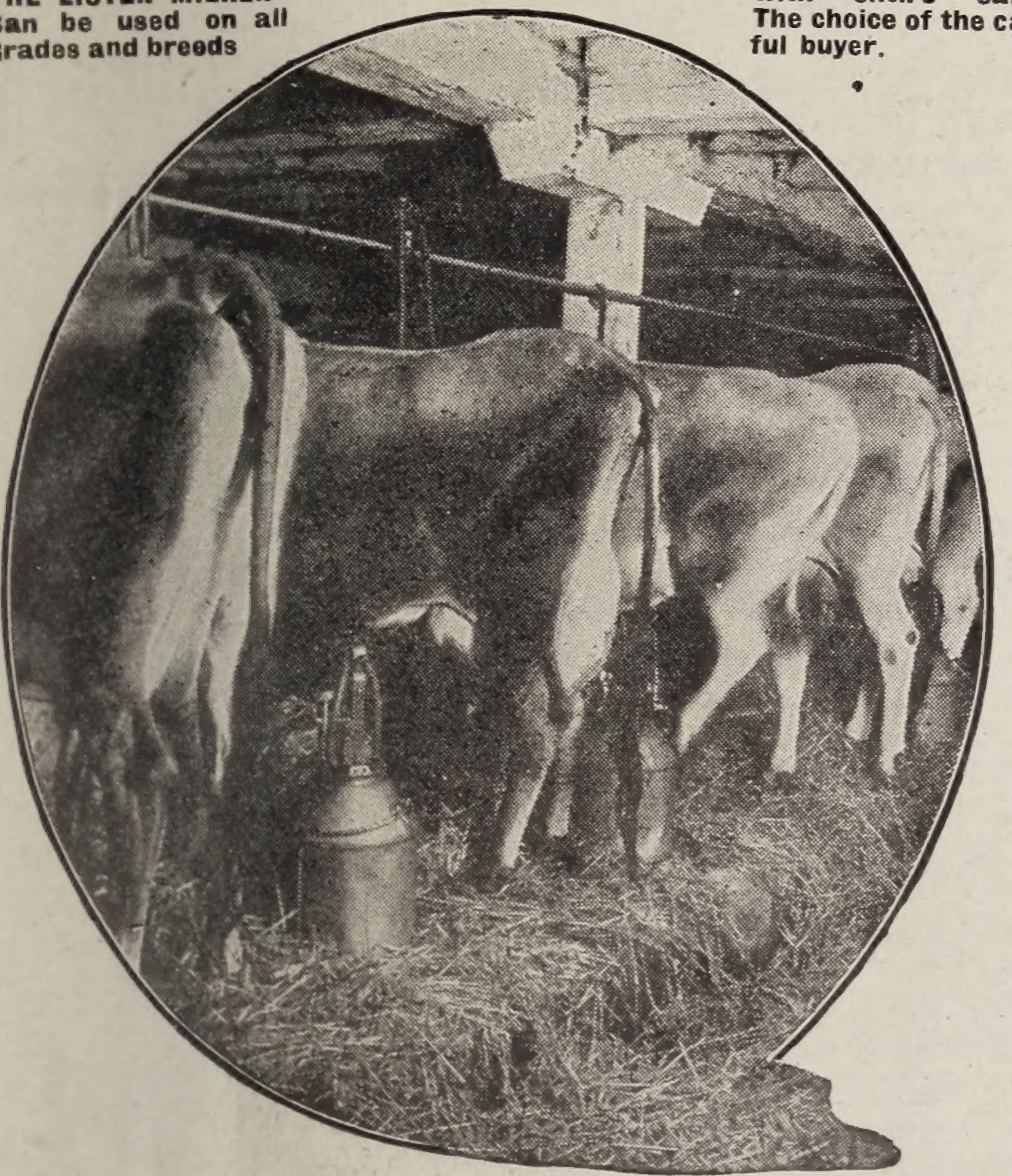

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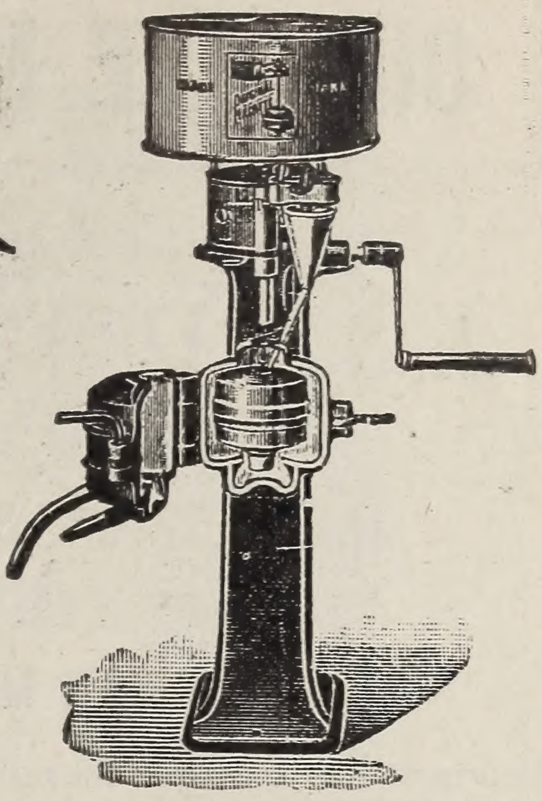

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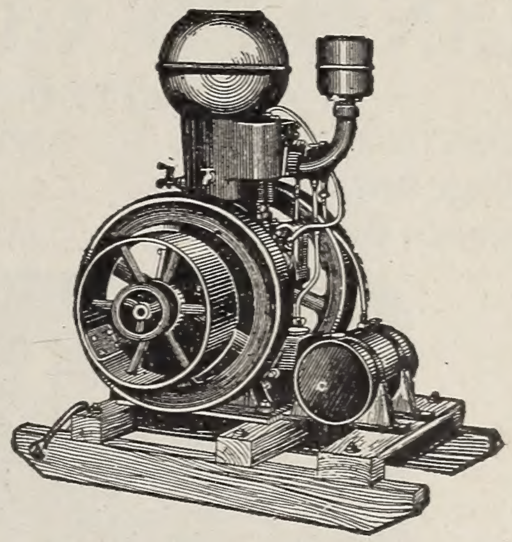

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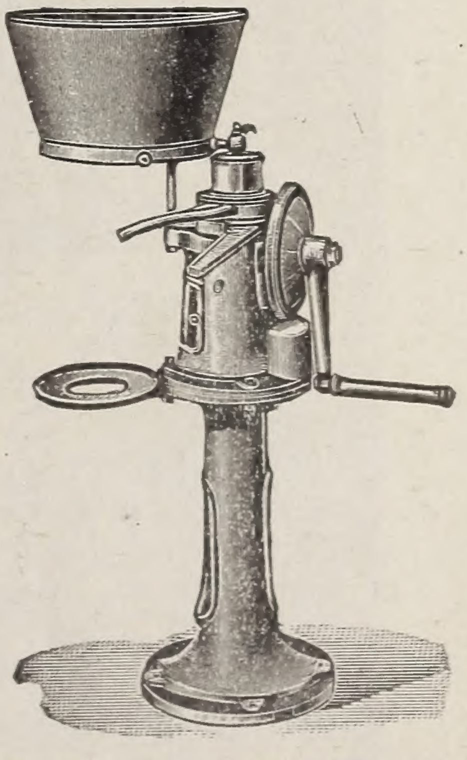

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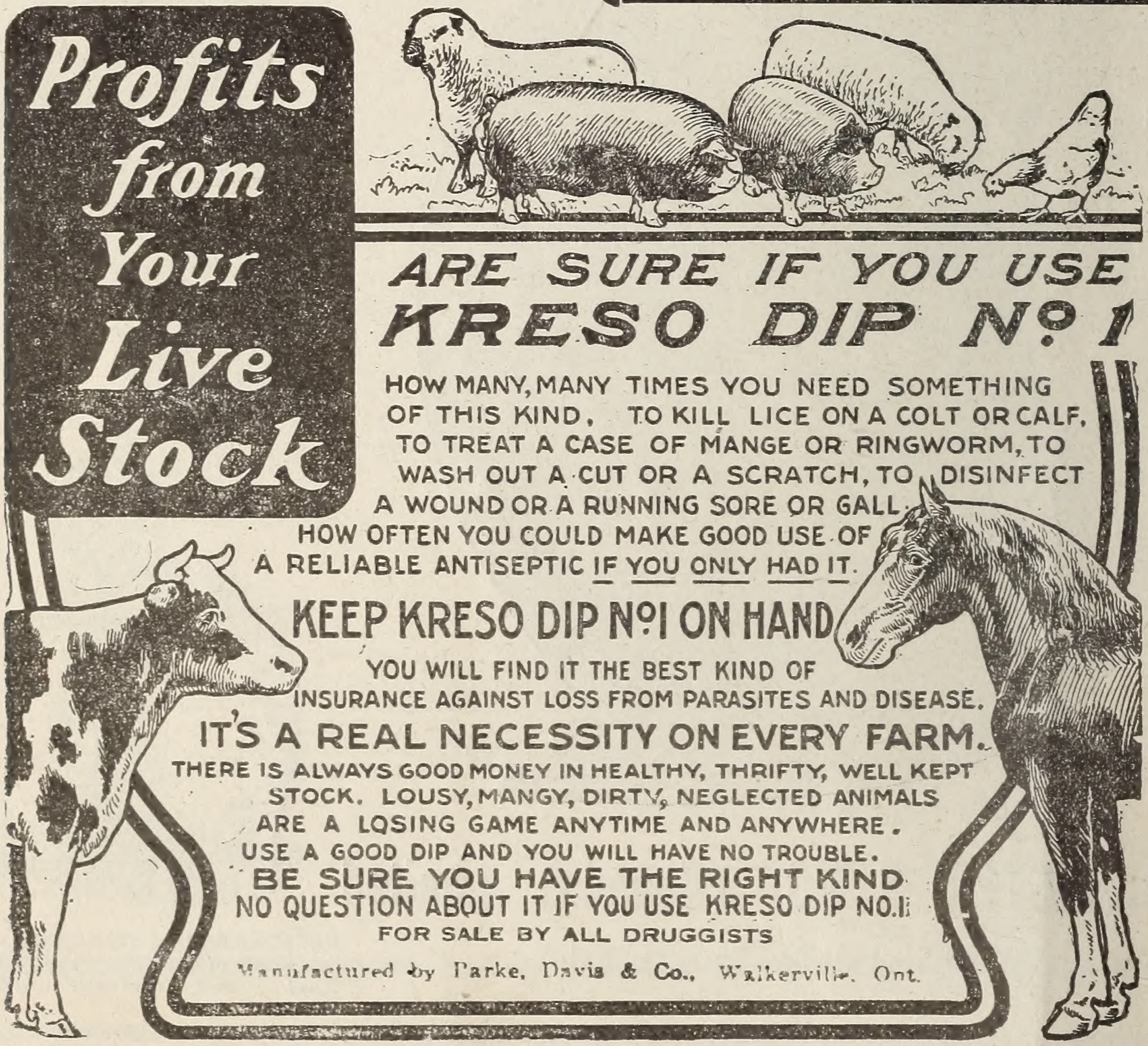

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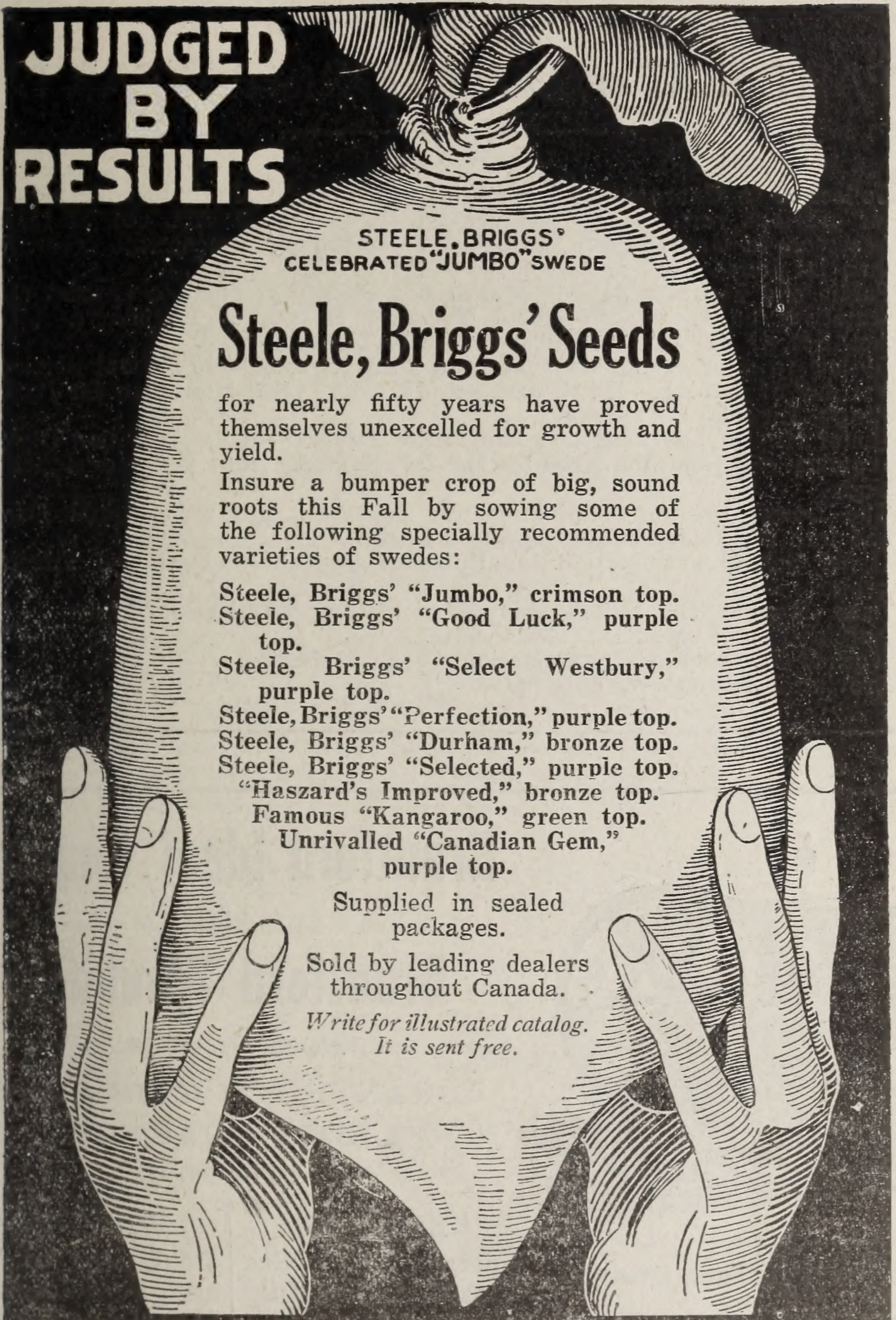

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OFFICIAL CALENDAR
OF THE
DEPARTMENT of EDUCATION for the YEAR 1919

June:

1. Collectors in Unorganized Townships to report to Sheriff uncollected rates for previous year. (On or before 1st June). [P. S. Act, sec. 37 (3)].

Assessors in Unorganized Townships to return assessment roll. (Not later than 1st June). [P. S. Act, sec. 34 (4)].

Public and Separate School Boards and County Council to appoint representatives on the High School Entrance Boards of Examiners. [H. S. Act, Sec. 47 (1) (b)]. (On or before 1st June).

By-law to alter school boundaries or form Consolidated School Sections—last day of passing.]P. S. Act, sec. 15 (2)[. (Not later than 1st June).

3. King's Birthday (Thursday).

8. Senior High School Entrance and Senior Public School Graduation Diploma examinations, and the examination for Entrance into the Model Schools begin.

9. The Lower School examination for Entrance into the Normal Schools and into the Faculties of Education begins.

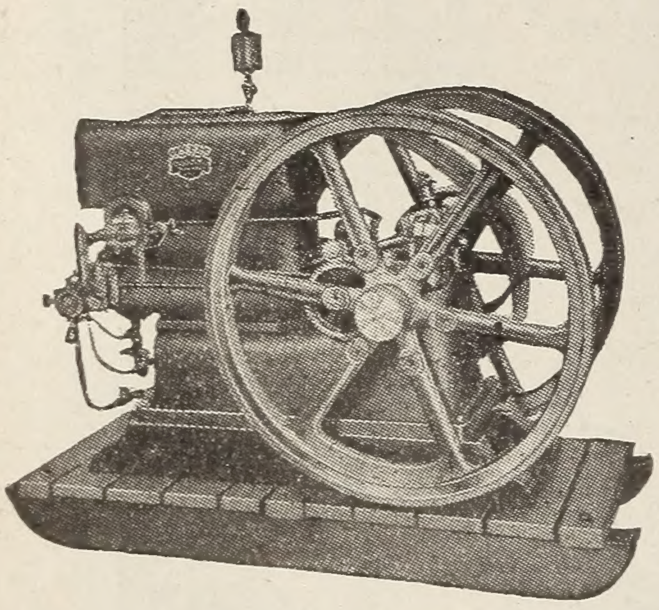
Upper School examination for Entrance into the Faculties of Education begins.

Pass, Honour and Scholarship Matriculation examination begin.

11. English-French Model Schools close.

16. Normal School Final Examination Group II begins.

18. Provincial Normal Schools close.



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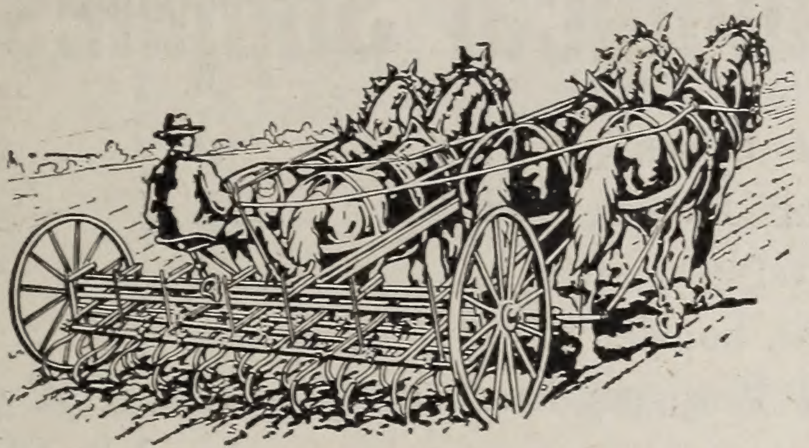

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CONTENTS

VOL. XXXII. MAY, 1920. NO. 9

Page
Valedictory 441
The Kinglier Clodhopper 442
Standardization of Tile 445
Music in the Home 447
Creameries in Quebec 450
May (A Poem) 453
Our Oldest Inhabitant 454
Supplementing the Pasture 456
What is a Plant Chimera? 458
A Comparative Study of Some Insulating Materials 459
The Potash Supply 464
Women in Agriculture 468
"Apres la Guerre" 469
Editorial 472
Alumni 475
Macdonald 477
Athletics 479
College (A Poem) 481

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THE O. A. C. REVIEW

"THE PROFESSION WHICH I HAVE EMBRACED REQUIRES A KNOWLEDGE OF EVERYTHING"

VOL. XXXII. MAY, 1920 No. 9

Valedictory.

NEARLY thirty-five years ago, I came to the O.A.C. a green country boy enjoying his first ride on "The cars."

I found five instructors on the staff; one man teaching all of the Botany, Zoology, Geology, Physiology, Bacteriology, Entomology, Chemistry, Horticulture and part of the English.

To-day we have twenty men giving instruction in these subjects alone.

Seventeen years ago I came back to find a new College with well established Departments of Science, with a full four years' course and a Woman's Department in process of development.

Now I take my departure for new lines of endeavor and can only look back with pleasure and appreciation of the happy years spent at the O.A.C.

The position of President of this College is peculiar in some respects. He is directly responsible to the Minister of Agriculture, who has authority to "Hire and Fire" both the President and his staff at will. Even a hint will sometimes cause a man to change his environment.

There is no Board of Control, no Board of Trustees, no Board of anything, hence, the President, as the Executive Head, has, under the Minister, the entire responsibility of the whole Institution. He recommends all appointments to the staff, signs all accounts, approves the plans for all buildings, awards punishment for all misdemeanors, reports all deficiencies in staff and writes the Annual Report. He is Chief Disciplinary officer, visits the hospitals every week, arranges for the weekly Sunday Service, entertains the Minister from Saturday to Monday, and other guests the rest of the week.

He undertakes much public speaking. I have addressed gatherings in almost every Town and Township of Ontario, speaking to forty-five Canadian Clubs, and all of the different Agricultural Organizations year after year.

He attends the meetings of the

different Student Organizations and is Honorary President of the Cosmopolitan Club. In fact, as a Darkey once said to an employer, who had changed him about the works a good deal, "Say, Boss, it takes quite a complicated man to hold down this here job."

And so I lay the burden down. One cannot please everybody all the time, and I know there are some may be glad to see me go, but I have done my best to popularize the Institution throughout this and other lands; I have done my best to build up a curriculum that would require boys and girls to work; I have done my best too, with the help of my family, to keep an open house and show hospitality to all who called upon us; I have done my best to keep a loyal and contented staff, hard at work; I have done my best to stimulate interest in Scientific Agriculture in this Province, and I have done my best for the student body at all times.

Where I have failed I am sorry, where I have succeeded I have received full credit from the men and women themselves, and full reward in the success of the thousands of pupils who have passed under my authority.

I wish everyone continued prosperity, and bespeak for my successor that loyalty and generous treatment that has ever been accorded to me.

May the present spirit and enthusiasm remain with O.A.C. men everywhere, a something intangible and undefinable but which nevertheless binds our lads together all over the world.

God Bless You All.

G. C. Creelman

The Kinglier Clodhopper.

By Arthur Stringer.

WORDS are the fossils of thought. Our word "farmer" comes from the Anglo-Saxon "foermere." which meant a "purveyor." That is to say, the farmer was the supplier, the provider of the world. And in earlier and simpler times there was no touch of derision to that self-justifying term of "farmer."

Then came the age of the urban center, with specialized labor and the cleavage of class distinction. The farmer, essentially isolated, became the "rustic," and a tinge of condescension crept into the urban use of that word. The men who had forsaken the land and seemed satisfied with life in the crowded centres soon found many synonyms for the rustic. He became the country-bumpkin, the clod-hopper, the hay-tosser, the corn-rustler, the hick, the rube and the hay-seed. The list is a long one. It is also a significant one, because in it lurks the calcified contempt of a good many generations.

But to-day that list is something more than significant. It is stupid. Yet stupid as it is, it is not so stupid as the attitude of mind which attemps to perpetuate it. And it is about time the farmers themselves did something to stop the farce. We all know the farmer as we see him on the stage, the sedulously perpetuated moss-back with chin whiskers and a tendency to talk through his nose. We know the burlesque of the "provider" which the cartoonist and the motion picture writer so assiduously exploits, the threadbare run-over from "Way Down East" and a mass of other equally stupid and obsolete romances. We know the farmer of the so-called humorists and the city-press paragraphers, the poor old over-worked lay figure who chews a stalk of timothy and wears wheat-straw in his hirsute appendage, at the same time that he murders the King's English and gets his tonsils sunburned staring up at the city skyscrapers.

To-day, however, this Farmer Corntassel of the stage and the screen is a lay figure and nothing more. At a time when, through the irony of circumstances, the farmers of our Province as so adroitly identifying themselves with the Intellectuals, we can even afford to remember that if our fathers and grandfathers were not the sartorial equals of the urban idler, there was a reason for that fact. They were pioneers converting a wilderness into a land of plenty. Their burdens were heavy, their labors were endless, and if in the stress of moulding a half million new homes out of sullen and far-flung frontiers they were given scant time for the finer issues of life, we can at least afford to remember that the legacy which they passed on to those who were to come later was something so munificent we should honor the sacrifices those toilers made for us and revere the shortcomings which we so foolishly permit the thoughtless to ridicule. For latently or patently they were all heroes, and instead of humor we should find nobility in their homelier speech and their hornier hand, in their rougher smock and jerkin, in their patched home-spun and their faded overalls.

But that's all changed now. And the way in which it's changed was brought sharply home to me when one of the oldest conductors on the old Grand Trunk the other day acknowledged that he could always tell when he was carrying a load of farmers on his train, because, as he quietly asserted, the farmers were so much better dressed than the other passengers. Frontier conditions no longer exist on the farm. The tiller of the soil has his experts and his instructional colleges, he has his telephone and his motor and his communicable roads, he has his daily paper and his co-operative associations and his fraternal organizations, and now, thanks to invention and machinery he has, or should have, not only the time but also the desire for thought on something more than the day's toil. Just at present, in fact, he enjoys a chain of advantages which his urban cousin very sharply envies him. So that urban cousin gets even by consoling himself, in picture and story, with his old-time idea of the rube and the hick and the hay-tosser. And it will be argued, of course, that this is something which can very well take care of itself. But, on the other hand, it is something based on falsity wedded to crudity and it is not always expedient to be over-delicate in combating the over-jocose.

And an illustration occurs to me. In the United States, not so many years ago, the united Irishmen across the line grew tired of the stage burlesque of the Hibernian. For years, in comedy and vaudeville and stage-clowning, that burlesqued Irishman has flourished, the actor made up with a baboon-face, who carried a shilalah and a cutty-pipe, wore a red wig and an emerald-green waistcoat, and had the trick of falling on his potato-lipped countenance to the accompaniment of a loud thump on the bass drum. There was one "team" in particular (which shall be nameless) who battened and fattened on this burlesque of the Irishman. And finally the sons of Erin's Isle took action. After protesting to producing managers and house managers without avail, they quietly took the matter into their own hands. For a somewhat limited length of time that burlesque Irishman, every time he walked out on the stage, was received with a silent but odoriferous welcome of antique eggs. It sounds ridiculous, and it seems ridiculous, but it wasn't many weeks before that stupid caricature of the Irishman was egged off the American stage. And when he went off, he went off to stay, for the managers woke up to the fact that it wasn't profitable to give bookings to acts which were going to be received with such plain-spoken hostility.

So I venture to assert that if the farmer, or the more independent spirited son of the farmer, were to register his protest against the burlesque of the "hay-seed" in which, for instance, the modern moving-picture revels and register it, by anointing that offending screen with a sufficiently sulphuretted egg from the homestead where the sound of the electric-motor has drowned out the ancient and antiphonal "Gosh-Darns!" and "Sufferin' sassafrasses!" we might before many moons impress on the Hebraic gentlemen who reproduce that perpetuation of an absurdity and an anomaly that it would be profitable to exercise a little more intelligence in their depiction of the tiller of the soil and the producer of their daily bread. I myself, who am a farmer and can still tell the difference between a hawk and a henshaw, must acknowledge that I am good and tired of that traditional old burlesque of the "hay-tosser," and no tears of remorse would irrigate my meadows if I saw him egged out of existence.

◆

Too many virtues in a man are apt to make his friends long for a few vices.

Standardization of Tile.

By F. L. FERGUSON.

EXPERIENCE is an excellent teacher, althought sometimes a very expensive one. Such has been the case with many tillers of the soil, especially during the wet seasons of 1916 and 1917. Western Ontario was hit hard. This was because of the flatness of the country, and the nature of the soil. For the most part it is a heavy clay and does not afford a free passage for water.

During these two years not a few farmers had empty barns. In many cases a threshing machine never came on the place, and needless to say some hardship resulted. What was true in the extreme in these cases was true to some extent on every farm possessing low-lying flat land, that which was not naturally drained, to at least some extent, or was not artificially drained. The last named caution saved many a crop, and the fellow who watched his own farm flood while the other fellow managed to sow and reap a harvest, vowed that he wouldn't be caught again, and set about to make plans to tile his farm. Sometimes it was necessary to borrow money from the Government. Frequently the bank advanced him the necessary funds, and more than once the tile manufacturer and the machine owner waited until after harvest for the settlement of their accounts.

All this taxed the manufacturer's output severely. The farmers had to have tile and were not disposed to be so critical, accepting what under other conditions would be classed as seconds. The manufacturer viewed the increased business with an eager eye, and perhaps did not take any more care than was necessary with his ware. In some instances he refused to cull his tile, and in others a few extra hours' burning would have added much to its durability. The result is that a great many defective tile have gone into the ground. One poor tile is all that is required to put the whole system out of business, hence the importance for only the best to be used.

But who is responsible? The consumer perhaps because he accepted the product. On the other hand he had no choice, and even if he had he is not always in a position to distinguish between a poor article and a good one—particularly so with concrete tile. He has had no time to investigate processes of manufacture to know whether his local manufacturer should be using an up-draft or a down-draft kiln, whether he should pull down his old domes and build a J. B. Owens tunnel structure, whether he should be making a thin-shelled or thick-shelled tile, or whether he should burn for fifty-six hours or seven days. There are a hundred and one things that enter into the process on which only a man thoroughly familiar with the business can pass judgment on. Hence the consumer is more or less at the mercy of the manufacturer, and he being human does not always expose his secrets.

Fortunately, however, the majority of our tile manufacturers are interested in the perpetuation of the industry, and take an interest in turning out a first-class article. It is the other fellow who requires the attention of one who knows, and the consumer who needs attention.

In this respect we are somewhat behind our American neighbours, who have spent much time and money on the preparation of Standard Specifications for Drain tile, which serves as a guide for the manufacturer in the production of his wares, and for the engineer in the accepting or rejecting the same for any specialized piece of work.

These tests divide themselves into two main divisions: Chemical and Physical. Without a special agreement in advance, in which is outlined the acid or alkaline nature of the drainage water, or abnormally high temperature, it would not be reasonable to reject tile because of their chemical composition. However, any visible grains or masses of caustic lime, iron pyrites, or any other minerals which are known to cause slaking or disintegration, should be regarded as valid ground for rejection.

The Physical tests are three in number: Strength, Absorption and Freezing and Thawing. It is not necessary for us to discuss here just what should constitute a satisfactory article in each of these respects, as long as we know that it meets the requirements and that the consumer will be safe-guarded against poor quality. It is desirable that some standard be set, that inspection of yards be made, and that only the best be allowed to go to the field.

There are, however, several requirements that should be demanded by every purchaser, and may be determined by visual inspection. Anyone who contemplates buying should make himself familiar with these and be in a position to know what he is getting.

1. All tile should be of circular cross-section, straight, with ends regular and smooth.

2. They should be substantially uniform in structure, smooth on the inside, and free from cracks or checks.

3. Tile should give a clear metallic ring when tapped with a light hammer.

4. They should be sufficiently burned to withstand a reasonable degree of supporting strength. This might be determined by stepping heavily on the tile, or throwing it from a wagon on to reasonable hard ground.

5. Colour, particularly of a red-burning clay is an excellent guide to the quality of the product. This makes it necessary for one to familiarize himself with the raw material and the processes used, before he can interpret the true meaning of the colour.

6. With concrete tile one should know the nature of the raw materials, proportions used, method of manufacture and process of curing. A sharp gritty washed sand free from clay, loam or organic matter is desirable. Proportions will depend upon the fineness of the sand used. Power machinery of some recognized firm should be used, and a steam-curing kiln is essential.

Music in the Home.

By H. C. Fricker, '23.

THE character of a man consists largely of the instincts, emotions, desires and expressions which dominate his whole active life. One of the main instincts is music, or I should say, melody, the simple beginning of a fathomless art.

From earliest days of childhood we have memories of song and tune. Our own joyous careless feelings of happiness natural to youth, expressed in loud and hearty voice; our mother humming over her household duties; the whistling errand boy in the streets; a battalion of soldiers singing in the line of march, and roused to a pitch of enthusiasm by some national song; an audience swayed by the lilt of a music hall ditty; the magnetic fascination of dance music; all these illustrate unquestionably the natural method and necessity of expression of feelings and passions, by some form of melody.

In modern education the faculties of the mind are developed by the study of different subjects which have very little or no natural basis to work upon. How few children have an instinctive feeling for the confusing problems of Euclid, the weary De Bello Gallico, of the puzzling experiences of Achilles, the monotonous repetition of Greek verbs or the laboured translation of the Odyssey! Yet these things are taught to develop and improve the mind. They have no natural basis, and yet produce the modern intellect. How much more easily could the mind and character be built up and perfected by a gradual training of the inborn sense of melody! Not only would the results be superior in mind and character formation, but the liking of the pupil for the subject would more than double the progress and development. Not that these other subjects have not each their own educational value, but that in music there are unlimited possibilities for real and valuable education. Its history, development, technique, form, expression and writing give unbounded scope for every variety of mental status and capacity.

"Auguste Comte" in Positive Philosophy states the following: "Daily experience shows that the affections, the propensities, the passions, are the great springs of human life; and that so far from resulting from intelligence, their spontaneous and independent impulse is indispensable to the first awakening and continuous development of the various faculties." Feeling is the birth of all action, impulse the basis of all accomplishment. That which we do not feel, we cannot express or perform, (with certain exceptions to habit). So that whatever we feel, that shall be, and along those lines will be our development. To be a successful statesman, a man must feel the joy of helping to control and better the affairs of state; to write effectively a literateur must feel the exhilaration of expressing his thoughts and emotions in beautiful and artistic language. The poet, the business man, the scientist, the soldier, each must feel the love and absorbing interest in their work or they will fail.

Now all great musical compositions are the natural outpouring of the soul and emotions of deep and magnificent characters. The study, the knowledge and understanding of these expressions of thought and feeling develop and stimulate all the latent powers within us. We are drawn out of ourselves. Pessimists, we are forced to become optimists. In the throes of anguish and grief we are comforted. In despair we feel the powerful influence of hope Whatever mood we may be in, music makes us forget ourselves, our likes and dislikes, troubles and annoyances, worries and cares, and feel towards life as we were meant to feel, contented in free open spirit Thus we gradually grow accustomed to feel everything we do, feel every-we say, and feel everything which others feel: and we live our lives brim-full of action and happiness. Our mind are turned to the minds of those around us; with them we have a deep unquenchable sympathy. We become human. Music can and does develop us in this way, if only we will take the trouble, and try to understand its meaning. Everyone has the power in some degree or other.

The medium of interpretation of melodic thought and emotions has varied and dissimilar forms. We may have the single phrase expressed by the vocalist or the solo instrument, leading to more complicated or combined melodies of the piano, organ, chorus and orchestra. All these mediums vivify different ideas, or the same ideas in different forms and tones, so that we are neither impressed nor affected the same way by all of them. This fact alone enables music to hold the enormous sway over the vast and varied number of human characters in the world.

An average person is not able to hear directly all these methods of interpretation. Therefore to appreciate and to study well this great world power they must be heard indirectly, and the phonograph is this indirect agent.

Before this almost super-invention the only way to hear the master artists or great composers was to attend concerts in some large city, an absoultely impossible proceeding for thousands of educated and musical people. Now the privilege is attainable for rich and working class alike. Be it Caruso or Galli-Curci, L'Opera Comique or Metropolitan Opera House celebrities, English, Russian, French, or Italian Orchestras, a true and natural reproduction of actual performance can be heard as often as possible for the small price of a record.

In listening to a new record, the following points should be kept clearly in mind;—Try to feel what the composer is depicting or striving to show in his music. He may be describing a scene, trying to rouse a feeling of passion, pouring out his own vivid emotions or trying to create an atmosphere for imagination, thus leading the mind into channels far outside itself and into which it has never been able previously to gain access.

Music is essentially a medium for transmission of thought and emotion. Try to train your thoughts and feeling so that you can understand exactly what the composer means you to feel, or anyhow in some small degree. He has the power, that is his talent and gift, or he would not be a great musician; so try to develop power in yourself to understand him. You have that power, or no music would have any effect upon you. And there are very, very few human beings of this nature born into the world. Commence with fairly easy simply-constructed works, and gradually change to more complex and technical. For instance in studying Schubert, begin with some of his songs, such as "Who is Sylvia," "The Earl King," sung by some great artist of the day, and gradually change to his orchestral works; "Rosamunde" Overture, "The Unfinished Symphony" and others, and then to some of his chamber music, trios and quartettes. In the same way become acquainted with Dvorak, the greatest Bohemian composer. Lead up from some of his beautiful songs, "Songs my mother sang to me," and others, the "Humoresque," to his orchestral masterpiece "The New World" Symphony, and his "Hungarian Dances," finishing with trios and quartettes. Most composers can be studied in this way. Tchaikowsky, the passionate Russian master, has written some delightful melodies such as "Chanson Triste," "Chante Sans Paroles," "Casse Noisette Suite" (Orchestral), and wonderful smyphonies, notably the "Pathetique" 6th and 4th and 5th, "1812" Overture, "Capriccio Italien," and many opera selections, trios and quartettes.

A final word of warning. Because a piece of music does not appeal at first hearing, do not condemn it and refuse to hear it again. You are at fault, not the music, if it be by a recognized composer. Some composers may appeal to you more than others do, according to your character and temperament. I once knew a gifted professional violinist, a deep and sincere musician, who disliked Bach, the man who revolutionised music in the eighteenth century and laid the foundations upon which is built all modern music. Listen seriously to what is being rendered, hear it again and again, hum the the melody, let its beautiful phrases ring through your head all day long. In the end you will appreciate and understand the at first hidden meaning in it, and be happier for the comprehension. I speak from vivid experience.

And finally do not cultivate a passion for ragtime. This syncopated hash is excellent for dances and occasions where rhythm and enthusiastic motion are the chief ambition. But as music, to be listened to intelligently it is decidedly poor. You soon get tired of it, a sure sign and condemnation of a bad melody. Once you get to love real music, once your whole being vibrates and pulses at its sound, once you lose yourself and leave the present world, dwelling in the unbounded regions of emotions and imagination, you will know one of the most wonderful joys of life, and your mind will never grow tired of it. The more you hear the more you will perceive and hear in it.

* * *

The truth is always the strongest argument.—Sophocles.

Creameries in Quebec.

By H. W. Parry.

According to the Bureau of Statistics of the Province of Quebec, the following figures relating to the dairy industry of the Province are available for the year 1919:—

Number of Factories—657 creameries, 873 cheese factories and 396 combined factories, a decrease of 27 since 1918.

Amount of Butter Made—35,409,837 lbs., again 36,761.25 lbs. in 1918.

Amount of Cheese Made—59,170,681 lbs., against 62,070,210 lbs. in 1918.

Value of Factory Products—Butter, $19,567,295, against $16,364,950 in 1918; Cheese, $15,473,953, against $13,976,906 in 1918.

Total Value of Factory Products—1915, $18,471,501; 1916, $22,460,720; 1917, $27,861,573; 1918, $30,341,856; 1919, $35,041,248.

In 1918, the total value of the dairy products of the Province of Quebec was $61,378,002, of which $30,341,856 came from the creameries and cheese factories, and the balance approximately as follows:—Shipped as milk and cream to Montreal and Quebec, $13,140,000; exported as milk and cream to United States, $1,723,700; home-made butter and milk and cream consumed, $16,172,486.

Nearly a quarter of a century has elapsed since Prof. J. D. Leclair and the writer were commissioned by the Department of Agricultur- Quebec, to visit the State Dairy School at Burlington, Vt., to investigate what was being done there at the time in the way of the practical application of Pasteurization to creamery butter making. That visit serves the writer as a landmark, by which to guage the progress which has been made in this Province since the year 1896. So far as pasteurization is concerned, from the natural desire and reaching out for knowledge of those days, has developed the almost universal practice in the creameries of the Province at the present time. This stands as a typical example of foresight on the part of the creamery leaders of Quebec Province, for unlike other industries which adopt new methods because an immediate increased return is derivable therefrom, it is only within the last year or so that a substantial premium has been established for pasteurized over unpasteurized butter on the open market, and for many years after the principle of pasteurization had been advocated by our dairy leaders, no appreciable return for the extra labour and expense was manifest. It was in those earlier days of the industry that the foundation of the present factory syndicate system was laid, which system is the main executive of the Quebec Dairymen's Association of to-day, guided and controlled as it is, by the leading creamery experts of the Province, in conjunction with wise and unreserved backing from the Department of Agriculture at Quebec. Creamery problems have at all times been tackled and solved in the first place by the acknowledged creamery experts of the Province, and legislation at Quebec has followed swiftly and surely, to consolidate and put into practice the advanced methods recommended. Perhaps to this happy circumstance is largely attributed the wonderful progress which the last decade has witnessed in the dairy expansion of the Province of Quebec, that, when the leading creamery experts were convinced that the creamery interests of the Province demanded certain regulations, such regulations became law without delay and without exasperating discussions of the same subject year after year at the Annual Dairymen's Conventions.

For instance, immediately it was recognized that the gathered cream system necessitated the grading of the cream at the creameries, such grading was made compulsory by the Statutes of the Province. On March 5th, 1915, "an act to amend the Revised Statutes, 1909, relating to the Dairy Association of the Province of Quebec and to the manufacture of dairy products" was assented to, and the article relating to the grading of cream reads, in part, as follows: "Article 2031g, Section 2. Such butter maker so qualified shall classify the cream brought or sent to the factory by the patrons and shall divide the same into two classes, numbered respectively one and two. Class No. 1 shall consist of cream suitable for making first quality butter, and Class No. 2 shall consist of all other cream accepted by the butter-maker for making butter. The cream in each class shall be made into butter separately. Each class of butter must be sold separately, and the proceeds of such sale shall be divided among the patrons according to quality, and in the proportion of the quantity of cream in each class supplied by each patron.

"The cream of each patron must be brought or sent to the factory in a separate receptacle."

I have merely emphasized this one example of dairy legislation, as illustrative of what has been the guiding spirit of both our creamery officials and Provincial legislators, the former with a well defined, tangible, progressive policy, the latter always ready with the necessary legislation to put it into practice and enforce it.

Now to revert back again, to those years between 1896 and 1902, in which the leaders of creamer thought in our Province, condemned the introduction of the hand separator on the farms, I would wish this attitude to be understood in its right perspective.

The constant and undeviating policy of our creamery leaders, ever since the inception and organization of the Quebec Dairymen's Association has been "Quality." No other consideration was allowed to befog the goal. It was early realized that the trained minds of the industry, were the creamery men who had availed themselves of technically and theoretical instruction through the media of the Dairy School courses. It naturally followed that any new method which took the control of the raw material largely out of the hands of the creamerymen would prove detrimental to "Quality." Yet in spite of this opposition at that time, Quebec has been the first of the older Provinces to enact remedial legislation with regard to gathered cream by making grading cream compulsory. Never, until the last few weeks, has any other motto than "Quality" been urged upon the creamerymen of our Province. This motto of "Quality" first and foremost and all the time constitutes the method which has produced such uniformly good results for our creamery business.

A few weeks ago, I noticed in the press report of an address by one of our recognized dairy experts, that in his opinion, the time had come when the buttermakers of our Province might advantageously consider the question of increased yield. My mind went back nearly twenty years, when creamery officials in our sister Province, undertook to emphasize the possibility of incorporating more moisture into Ontario Creamery butter . I remember, that I questioned in my own mind at the time, the wisdom of moisture incorporation to the limit, being sanctioned and encouraged by creamery experts in official positions, before a reputation for quality had been firmly established and become the guiding principle of makers. The Quebec method in pursuit of Quality, has been to leave the moisture intuitively that the matter of Qualquestion to the makers, knowing ity, is readily the Master of Quantity. The future will demonstrate whether our motto of Quality has been firmly enough established in our Province, to permit of attention being directed to Quantity, without unfortunate results.

The prospects of creamery industry in our Province are extremely bright. The spirit of true cooperation is abroad in the land, and the confidence which the French Canadian population naturally evince in their recognized leaders, tends to a ready solution of the economic principle of present day dairy problems. New markets are opening up for both our butter and cheese and condensed milk products in the countries of Europe, and American capital is being attracted to our industrial centres to help swell the numbers of dairy consumers at our very doors. We are most faborably situated to embark to an unlimited extent the export enterprise, with Montreal the centre of export produce trade for the whole Dominion readily accessible and our local markets becoming more important in these days of reconstruction, there is assured prosperity for our dairymen for several years to come.

Government supervision is progressive, efficient, wise, and sympathetic. We have an able director of our creamery interests in the person of Prof. J D Leclair, Inspector General of Creameries, and an efficient and smooth working system of syndicate inspection under his direction.

We have the soil to produce all necessary crops, we have the purest of spring water, abundance of good pasturage, improving herds of cows, a wide awake population eager to absorb dairy love, and a healthy bracing climate.

We haevve unbounded faith in the future of our industry. What more would you?

Well! perhaps, before very long, co-operative cow-testing will become compulsory by-law, and 70,000,000 lbs of butter will be produced from the same number of cows that last year produced 35,409,837 lbs. Why not?

May.

When the ash tree buds and the maples,
And the osier wands are red,
And the fairy sunlight dapples
Dales where the leaves are spread,
The pools are full of water,
Winter is dead.

When the bloodroot blows in the tangle
And the lithe brooks run,
And the violets gleam and spangle
The glades in the golden sun,
The showers are bright as the sunlight,
April has won.

When the color is free in the grasses,
And the martins whip the mere,
And the Maryland-yellow-throat passes,
With his whistle quick and clear,
The willow is full of catkins;
May is here.

Then cut a reed by the river,
Make a song beneath the lime,
And blow with your lips aquiver,
While your sweetheart carols the rhyme;
The glamour of love, the lyric of life,
The springtime—the springtime.

—Duncan Campbell Scott.

Our Oldest Inhabitant.

The Story of the Buffalo.

By L. C. Adair, '20.

DURING the Sixties and early Seventies the buffalo roamed the Western prairies in hundreds of thousands; but during the next decade they disappeared entirely from the western range. The cause of this rapid decrease has never been explained. It is claimed by some that a plague common to bovines became epidemic and carried them off; others believe that the extermination was due to slaughter for their valuable hides.

As the buffalo went south each fall and returned in the following spring, it has been said that southern traders sent men north to burn the grass so that they could not return north to breed. Ex-officers of the Royal Northwest Mounted Police say that they believe the disappearance of the buffalo was due to the work of the United States Government, who sent sharp-shooters north to kill them off and thus force Sitting Bull and his Souix warriors into submission. This was supposed to be in revenge for the Cluster massacre and similar outrages.

In 1870 there were hundreds of thousands of buffalo roaming our Western plains, and whatever the cause, the herd that went south in 1878 never returned north again to the Saskatchewan River. Subsequent to this date small bands roamed throughout the West.

It would seem that about 1880 marked the close of the history of the buffalo in Canada, but a few years previous an Indian in the Sweet Grass Hills, captured four calves by cutting them out of a stampeding herd. These he presented to the Mission of St. Ignastius. In 1884 the increase numbered thirteen, and the authorities seeing that it was too great a stress on their slender means, decided to sell them. Michael Pablo, a Mexican halfbreed, and his partner, C. A. Allard, of Montana, saw their opportunity to secure a few specimens of the practically extinct animal and purchased ten at $250 a piece. The herd continued to increase under ranch conditions, and in a few years the owners were able to sell individuals for high prices.

The buffalo were allowed to roam at will, during the summer they fed on the plains, in the fall they crossed the Pend d'Oseille river and wintered in the foot-hills close to the mountain. Later Pablo, who now owned the herd, secured the Buffalo Bill herd, that had travelled Europe and North America.

In 1906 Pablo began to think of turning his unique herd into money. He estimated that he had 200 head. The United States Government made him an offer, but the price was so low that no transfer was effected.

In 1907 the Canadian Government received word that Pablo's herd of buffalo was for sale. The Minister of the Interiod saw the opportunity of securing for Canada what was probably the last large herd of what was once Canada's most characteristic animal. He urged strongly that the Canadian Government should purchase them, and having secured authority, was able to close the deal before the United States Government knew what was happening.

So much afraid was Pablo that his herd would not number 200 that he had his contract to read not less than 150. Early in 1907 the round-up started, which was an arduous task. The swiftest horses that could be obtained were used, but it was found that even at that the buffalo could out run them, and when cornered would charge with the utmost ferocity and scatter their pursuers to the four corners of the range.

However, about four hundred were transferred to the Dominion Experimental Farm at Scott, Sask., awaiting the preparation of their permanent quarters at Wainwright, Alberta. The following summer the remainder were shipped, bringing the total to well over seven hundred. The Mexican half-breed, although he could neither read nor write, amassed a fortune of $250,000 by his foresight and initiative.

The Canadian National Buffalo Park is situated between the Canadian Pacific Railway and the Transcontinental line of the Grand Trunk Pacific Railway. The enclosure contains about one hundred and sixty square miles, or approximately 110,000 acres. The park is fenced with a seven foot heavy woven wire fence. The fencing in and around the park totals about 100 miles erected at the cost of $1,000 per mile. At the northeast corner, within a half mile of the town of Wainwright, Alberta, an area of 1,400 acres is fenced for a visitors' park. In the smaller area are kept 100 buffalo, eighty elk and several moose. At the southeast corner an area of twelve miles square is fenced for winter quarters. Here most of the cows and calves are wintered. The buffalo park is said to be the largest, enclosed area in the world, besides enclosing the largest known herd of buffalo. The park is the natural stamping ground for the buffalo. It is rolling land, containing numerous fresh water lakes, covered in many places with bush and small trees. The number of buffalo in the park at Wainwright, as near as can be estimated, is about four thousand five hundred.

The shortest distance between two given points is the most direct route; hence the main trail between Hardisty on the C.P.R. and Wainwright on the G.T.P., lies through the park for a distance of about twenty miles. The only restriction placed on the travelling public, regarding the passage through the park, is the request to close and secure the gates.

Who does not enjoy the element of chance? Here we have it aplenty, from the time the traveller enters the park on one side until the latch clicks behind him on the other it is present. The possibility of encountering a herd of from two dozen to four thousand buffalo is ever with you. A burly, brown head, short, thick, stubby incurved horns, thickset, heavy bowed neck, tremendous breadth of chest and shoulders, great spring of rib and heart girth, with light sloping hind quarters, make a typical buffalo bull.

While travelling through the park one is occasionally confronted with a great white face on an animal, backed up by a typical buffalo body. The usual thing to do is to rub your eyes to be sure you are not seeing double. Groping back into the dusty recesses of our brain for an explanation, mutant sports, reversion and atavism come tumbling forth, but none of them are satisfactory. On making enquiry, we are informed that this is the "cattalo," a hybrid produced by crossing the hereford and the buffalo. The idea that the management of the park are trying to follow out is to secure an improvement in the quality of the buffalo meat and at the same time to produce a hardier breed of cattle. It may be said, however, that the success with which they have met, might not be considered encouraging; for only in one case has it been possible to get the cattalo to reproduce.

It was stated on good authority, but not officially, that the management propose putting the park on a self sustaining basis. The revenue is to be derived from the sale of buffalo meat, hides and mounted heads. A well mounted buffalo head will bring $200, while a buffalo hide manufactured into a robe will bring from $500 to $800 according to the quality.

Supplementing the Pasture.

By W. H. Grant, '21.

At this time of year, the question before the minds of all farmers, and more especially dairymen, is that of the prospect for good pasture during the coming summer. The summer pasture means to them, according as it is good or bad, profit or loss, but in spite of past bitter experience few have looked about them for some crops which will supplement the old standby — Red Clover. The climate of Ontario, and particularly of some parts of it, is such in certain seasons that our Red Clover invariably winter-kills, and so it is almost necessary to produce some crop or crops which will replace it as a pasture for the coming summer season.

There are a number of factors which enter into the choosing of a crop for annual pasture. In the first place, it must be such as to grow and produce pasture in a comparatively short period of time, for as soon as the first rank spring growth is over, the native pasture cannot be much depended on. This factor eliminates practically all biennials, as they do not grow rapidly enough to fill the requirements. Secondly, a pasture crop should naturally be able to withstand pasturing. That is, the tramping of the animals and the continual cropping should not reduce their vigorous growth very materially. Such crops as corn and buckwheat would consequently not be very suitable, except for a short time. Then, thirdly, it is almost always necessary for a pasture crop to be palatable. It is true that the palatability of some plants increase with use, but a crop which animals will eat with relish from the first will generally give best results. Fourthly and probably the most important factor, is that the crop used should withstand the hot, dry months of July and August, and continue to produce pasture almost until the snow falls.

To find these factors in any one plant is almost impossible, and so a system of mixtures has been restored to. In experiments carried on at different stations, mixtures have been tested out with the object of obtaining one which will fill the requirements stated above, and to date, very satisfactory results have been obtained. Of course, it must be remembered that these cannot stand up to the results from permanent pastures and are only as a supplement in case of the failure of the above four various reasons. At the O.A.C. the mixture which has probably given the best results is one consisting of Oats, Early Amber Sugar Cane and Red Clover, sown in the proportion of 21 lbs. of oats, 30 lbs. of sugar cane and 7 lbs. of red clover per acre. This mixture is easy to seed, the oats and sugar cane being mixed together and sown from the grain box, the clover being sown from the grass seed box of the seed drill. Pasturing should begin just before the oats begin to head, which will be in about six weeks after seeding. All three crops are palatable, the oats provides pasture during the early part of the season, the sugar cane comes on during the hot dry weather, and the red clover continues the pasture late into the fall. The following results were obtained in careful experiments carried on over a period of five years with steers, by the Field Husbandry Department, O.A.C.: "Steers were weighed once a month and were removed from the pasture at no other time. In the average of five years in which careful records were kept, it was found that on the average one steer would require four-fifths of an acre, or five steers would require four acres for the season. The increase in live weight of the animals was 2.6 pounds per head per day." These results have been borne out by several farmers in different sections of the country. While close results were not obtained, it was found that in seasons where pasture was scarce, the flow of milk from milch cows pasturing on the annual mixture was much higher per cow than from those not thus supplied, other factors being equalized as much as possible. Moreover, it was found that the sugar cane and red clover provided excellent pasture for sheep and swine, the animals requiring scarcely anything else. There is also the further benefit of having the land already seeded with clover for the following year, the pasture seemingly having effected very little damage. It must be admitted, however, that this mixture has certain drawbacks. In the first place, in the experience of several farmers, it was found difficult to obtain good sugar cane seed, it not being a common one in seed houses. Then, in a cold wet spring the sugar cane failed to germinate, leaving only the oats and red clover. At the present time the price of clover seed renders it almost prohibitive for use as a pasture crop.

This mixture may be modified by sowing different proportions of oats, barley and wheat with red clover, though none has given as great satisfaction as the sorghum, when it grows. From time to time different crops have been tested out, varying circumstances making success possible in each case. In every case, the circumstances and ingenuity of the individual farmer will decide, and it remains with himself whether he shall have a palatable, continuous pasture throughout the year and whether his books shall show a profit or a loss thereby.

* * *

What is a Plant Chimera?

By C. M. Dickey, '20.

If you look up "chimera" in the dictionary you will find the following description: "a monster vomiting flames, and having a lion's head, a goat's body and a dragon's tail." If you look up "chimerical" you will find: "capable of no existence except in thought." Applying this to the plant kingdom we gather that a plant chimera must be a plant, or part of a plant, combining the characteristics of others in a seemingly impossible manner. Does such a phenomenon exist.

Did you ever see a top grafted tree, having two branches; one immediately above, and the other immediately below, the union of the tissue? The branch above the graft will produce large, juicy and well colored fruit while the other, but two or three inches below, will produce fruit small, hard and worthless. Did you ever wonder what would happen if a bud should form and a branch develop exactly at the spot where the cells of stock and scion meet? A branch of this kind is what is known as a plant chimera.

The first plant chimera originated in Italy in a citrus fruit trees as far back as 1644. It still exists and shows in the fruit various characteristics of orange, citron, lemon and lime. The leaves and fruit both vary greatly, and one example of the latter, developed typically lemon on the outside and orange within.

The next chimera resulted from the work of a gardner, near Paris, in 1852, from laburnum grafted on a variety of Scotch broom. As a result a branch arose which was intermediate between the two. About twenty years ago Dr. Winkler, of Hamburg, Germany, produced numerous plant chimeras by grafting tomato upon the nightshade and by decapitating the graft, transversely, through the callous after its formation. Some hundreds of grafts were necessary for the production of each single chimera.

Following Dr. Winkler came a man who did much to solve the problem from a physiological point of view. This was Dr. Bauer, of Berlin, who worked with geraniums and succeeded in producing many chimera. He divided them into two classes; sectorial, or those which had the tissue of both stock and scion growing parallel, side by side; and perichnal which had the tissue of the stock overlaid with that of the scion or vice versa.

All but five of Winkler's chimera fell into the former class. The question was would the remaining five come true from seed. If so they were real graft hybrids. In two of these, the entire body of the plant consisted of nightshade tissue overlaid with, in one case, two and, in the other case, one layer of tomato cells. In two, of the remaining three chimera, the conditions were reversed, and the nightshade tissue was on the outside. Experiment showed that these four, in the next generation, reverted to the parent type which they most resembled.

There remained only the fifth chimera produced by Winkler. This proved to come true from seed and is the first and only true graft hybrid known. Since these two men carried on their investigations many chimera have been produced upon calens, but none of these have come true from seed.

A Comparative Study of Some Insulating Materials.

By R. R. Graham, B. A., B. S. A., Lecturer in Physics, O. A. C.

BY way of introduction I wish to explain what I mean in this case by insulating materials. They are substances or materials which are poor conductors of heat, and those that will be referred to are of a loose nature like shavings and cork clippings for example. Sometimes these forms of insulation are called "fillers" since they are packed into the spaces between two walls of lumber and other materials.

Low heat conductivity is certainly the most important property of a good insulating material, but yet there are other properties that are very essential more particularly from the practical standpoint. What I mean may be more clearly expressed by the statement, that all good insulating materials are poor conductors of heat by nature but all non-conductors of heat are not necessarily good insulating materials. One illustration will serve to make this point still clearer—dry good quality sawdust is a poorer conductor of heat than planer shavings, but no one who is familiar with the behaviour of the two fillers in walls under similar conditions would choose the sawdust in preference to the shavings. The shavings wins out under actual tests because of several reasons: It is very elastic and so when packed into a space it maintains its position, whereas sawdust having no elasticity very soon settles and leaves large spaces at the top of the walls for the entrance or exit of heat. Then, again, the shavings do not absorb moisture so readily as sawdust, and as dryness is conducive to low conductivity it is very important that the material be a poor absorber of moisture. Furthermore, the shavings can usually be secured in a drier, and purer form than sawdust, and hence there is less liability to deterioration and decay in the shavings. There are still other differences that might be emphasized, most of them in favour of the shavings. To summarize a good insulating material has the following properties: low conductivity for heat, non-absorber of moisture, elastic (if a filler), pure or free from foreign substances subject to decay or spontaneous combustion, and these not mentioned before, namely, not subject to vermin, rats and mice, convenient to handle and install, durable, odorless (if used in construction of cold storages for perishable and easily tainted goods), and reasonably cheap.

For some time I have been very much interested in the subject of insulation, particularly the phase of it enunciated above, as I realized that it was something that would concern the practical agriculturist more and more as the years go by. Recent applications of insulating materials on the farms have confirmed my belief, so I undertook to experiment with several insulating materials, all fillers, in order to ascertain their comparative values as insulators or non-conductors of heat. So far as these experiments have been conducted they show only relative values, not absolute, for the materials tested, but since the question about them from the practical man is usually this, "Which is the best insulation?" The relative values are more useful of the two. I had hoped to determine the absolute values before now but sufficient funds and assistance were not available, and consequently the work had to be abandoned. The experiments carried out involved a great deal of tedious and painstaking work, but as the results were satisfactory I felt that the task had been worth while. The results in detail would occupy more space than I have at my disposal, and so only a brief description of the method used and a summary of the results obtained with a few comments thereon will be given here.

The method, to describe it briefly,

consisted of putting a small metal box containing a known quantity of ice and water in the centre of a tight wooden box and filling the intervening space on around the inner receptacle with the substance or insulating material that was to be tested, and later determining the amount of ice melted in a given time by the heat that had passed through the material. The tests were made in duplicate for two or three different times with each material tested. The reliability of the method was amply vouched for by the uniformity of results. The two boxes were sealed up tightly while under test. There was always sufficient ice in the inner box to insure a temperature of about freezing 32°F, throughout the tests and the room temperature was fairly constant, its temperature being recorded continuously on a self-recording thermometer. The amount of ice (in pounds) melted per hour per 1°F, difference between the temperature of ice box and the room was the basis for comparison of the conductivity of the material tested.

A series of preliminary tests was conducted to find out if the rate of melting of the ice in the inner box depended upon the size of the pieces of ice used. As stated above, the cans were filled with pieces of ice and then ice-cold water was added until the cans were completely filled. The tests showed a slight difference in favour of the melting of the fine pieces of ice, though very slight. It was eventually determined that if a uniform quality of ice was used and the pieces of ice ranged in diameter from 3 to 5 inches, and the spaces in the mass of ice were filled with ice-cold water, the meltage was practically a constant factor for any definite temperature. This fact having been definitely decided upon, the method already outlined was adopted and a long series of tests with several materials was carried out.

The materials subjected to tests were the following: Coarse black granulated cork, very fine black regranulated cork, 8/20 grade granulated cork of natural color, another grade of granulated cork—natural color, used as packing material for Malaga grapes, planer shavings, forest leaves, sawdust, chopped straw and excelsior.

The results showed conclusively that the very fine black regranulated cork is the poorest conductor of heat of all the materials listed above. If we put it at the top of the list and assign it a value of 100, the others occur in the order indicated in the following table:—

Names of Materials Tested	Average Ice in Lbs. Melted Per Hour Per 1° F. Difference in Temperature Between Ice-Box and Outside Air.	Relative Insulating Values, 100 being the Standard.
1. Very fine black regranulated cork.	.00410	100
2. Chopped straw.	.00476	86
3. Coarse black regranulated cork.	.0048	85
4. Forest leaves.	.0049	84
5. Granulated cork (natural color used for packing material around imported Malaga grapes.	.0049	84
6. 8/20 grade granulated cork (natural color) looks similar to preceding one, but a little coarser in granules and lighter in weight.	.0051	80
7. Sawdust.	.0060	68
8. Excelsior.	.0068	60
9. Planer Shavings (loose).	.0068	60
10. Planer shavings (packed).	.0074	55

As I have pointed out a good practical insulating material must possess other special properties than low-conductivity. In reviewing this table then one must bear this fact in mind, and not be guided in one's choice of an insulation by conductivity alone. Number one in the list is a very poor conductor of heat because it contains a large percentage of dry air in a quiet condition, but it is black and very dusty, thus very disagreeable to handle in any large quantity, and it is also costly. In my opinion it has no practical value for the farmer. It is better adapted to special lines of insulation in connection with cold storage construction. The next, chopped straw is a good insulation, accessible and cheap on the farm but unless rats and mice are absolutely prevented from getting into it one could not depend upon it for good results. It has also a tendency to settle in the space it occupies, but not so badly in sawdust. Forest leaves are not very durable as they become disintegrated especially if handled very much. It is very essential that they be thoroughly dried in the sun or in a warm room for some time before using. The granulated cork similar to 5 and 6 in the table make excellent fillers, being poor conductors, durable, pleasant to handle, not subject to decay, or ravages by rats and mice and poor absorber of moisture. Sawdust usually is not pure and dry enough to give good results except in temporary use as packing around ice in ice-house. Other undesirable features of it have been referred to before. Excelsior is too stringy hard and stiff for a good filler. The kind tested was rather coarse. The finer grades would be more satisfactory. It would be difficult to secure in large quantities. Planer shavings, although they are at the bottom of the list as non-conductors of heat, make a very satisfactory insulating material for general use as a filler if they are pure, dry and moderately fine. They are reasonable in cost and quite easy to get. I would say in summarizing comments on these materials that granulated cork (natural color), planer shavings and sawdust are the best insulating materials for use on the farm when all things are considered.

The uses to which these insulating fillers may be put in farm practices are: packing around bee-hives for out-door wintering, protecting water-pipes from frost, insulating milk and cream cooling tanks, and water supply tanks, fillers for refrigerator or small ice-cold storage walls, packing material for fireless cookers and other uses of minor importance.

Within recent years there has arisen on the farms quite a demand for these insulating materials for the uses just mentioned, particularly for wintering of bees outside; granulated cork and planer shavings are used chiefly for this purpose, but some have used leaves, chopped straw and sawdust with very good results. The future no doubt will intensify these demands and create many new ones, for instance some day dairy farmers will be insulating the walls of their stables in order to have warmer conditions during the winter and cooler in the summer from their high producers.

⁂

The Potash Supply.

By G. J. Callister, '21.

(Extract from Bulletin 29, Dept. of mines, Ottawa "Potash recovery at Cement mines.")

"The investigations upon which this bulletin is based were undertaken under instructions from the Chairman of the Committee of Reconstruction and Development, and the War Trade Board.

"Potash salts have not been produced in Canada on a commercial scale. . . . . .

"In brief it may be stated that potash salts are absolutely essential to food production and an independent home source of supply seems desirable in the National interest."

The Governments of Great Britain and the United States have made similar investigations. (See Fertilizer Resources of the U. S. Senate Document 190. Report of the Geological Survey 1913. The Fertilizer Industry Senate Document 551.)

Have these efforts successfully replaced the former German sources? If so, to what extent? It is the purpose of this article to discuss these and similar questions.

POTASSIUM is one of the three essential elements of plant food. It has a very definite influence on the starch of plants, both as regards the amount and the solubility. It is also necessary in the formation of sugar and other carbohydrates. The industrial uses of Potash are very numerous and important.

For these two reasons the use of Potash had increased before the war in every country of the world, even including South America, Africa, Asia and to some extent in Australia.

The most important requirement, for agricultural purposes, is that potash must be "available" that is soluble in water or weak soil acids. It is only in this condition that plants can utilize it. All the European ones are soluble. The difficulty in replacing foreign supplies, is therefore to locate a source of potash that is already in a soluble condition, or discover a process that will make insoluble potash compounds "available" at a reasonable cost.

For this reason the largest source of supply on the American Continent is the saline waters; and these are from two sources; one the Lakes of Western Nebraska, and the other the dried up place known as Scarles Lake in Southern California. The old lake bed is located between the Slate and Argus ranges of mountains. The potash is contained in the brine which is brought up from deep drillings sunk in the basin. It is estimated that the brine saturated salt body is 60 ft. thick, extending over an area of 11 square miles. In addition to these sources it is reported that there are one or two works in the vicinity of the Great Salt Lake, in the so-called Salduro Marsh.

The total production in 1918 was 147,125 tons of potash salts, containing 39,255 tons actual K O (Potash).

Some of these brines, however, contain borax. This was discovered as a result of injury to crops, so that at the present time no potash can be sold that contains more than a definite, low percentage of borax.

(See Circular 84, U.S.A., Dept. of Agriculture.)

Anywhere that lakes have formed with little or no outlet, a high content of salts in solution and rapid evaporation, it is possible that potash in varying quantities might be found. The question is, however, not only how much potash is in such water, but with what chemicals is it associated or combined? If injurious, such as borax, then can the potash be separated at a cost that will permit competition with foreign importations. Should a tariff be imposed to protect such industries? Already bills have been brought before the American Congress for this purpose, but so far have not been passed.

As the potash contained in brines is soluble it seems at present that it is one of the most promising sources. Alunite is a hydrous sulphate of aluminum and potassium; soluble in Sulphuric Acid.

Utah is the chief producer. The output is reported at about 20 tons daily. The potash is in the form of sulfate. From time to time we see reports of potash discoveries in the Western part of Canada. This formation consists of Alunite, but as yet no one knows whether the alunite is sufficiently pure and contained in large enough quantities to make the proposition workable. There is a good deal of alunite in various parts of the world, but so far as our knowledge goes the only successful workings are in Utah and some smaller ones in Austria, where ordinary potash alum was made. It is reported also that there are large veins in Australia.

Before using any fertilizer soils should contain sufficient moisture, organic matter and lime.

The Utah production, 1918, was 6,073 tons containing 2,619 tons actual potash.

Kelp. This source consists chiefly of the giant Kelp along the Pacific coast. The plant contains from 20 to 35 per cent. Potassium Chloride. It is understood that the various companies organized during the war did fairly well when Potash was selling at a high figure, but these companies have apparently since suspended operations. There is an experimental plant belonging to the U. S. Government working on experiments with Kelp.

In 1918, 6 companies produced 14,456 tons containing 4,292 tons of actual potash.

Dust from Cement Mills

United States production, 1918, 11,739 tons, containing 1,429 tons actual potash.

It does not pay to fertilize soils lacking in organic matter.

For a detailed account of the methods see Bull. 29, Dept. of Mines, Ottawa. Briefly, the raw materials used in the manufacture of cement are, some form of limestone (or marl) and clay or shale. After mixing they are submitted to a high temperature in a special type of kiln. The mixture is heated at a temperature as high as 1430°C. Gases are formed which pass through the stacks. These gases contain the volatilized salts of some of the alkaline metals, sodium, potassium and lithium, And, also, considerable quantities of dust. It is from these gases and dust that the potash is recovered. It is on the same principle that the recovery is made from blast furnaces; the potash being derived from the feldspar used as a flux.

These two sources, cement mills and blast furnaces, are regarded as the “two important potential sources

In various parts of the world 19 plants are known to have installed Potash Recovery equipment. None of them, however, are located in Canada. The bulletin referred to, however, suggests that “the problem of by-product recovery is one which should receive the serious attention of all Canadian cement manufacturers.”

Feldspar. This is often regarded as a source of potash, and from time to time one hears of companies being promoted for this purpose. The feldspars are of wide distribution; are common rock forming minerals, formed more abundantly in the igneous rocks such as granites, syenites, porphyries and felsite lavas. The content of potash varies, but may be 16%. Why not recover it? The difficulty is that the potash is in a very insoluble form. So that, notwithstanding the immense amount of talk, and the number of companies promoted for the purpose, very little, if any, soluble potash is manufactured from this source.

Other sources. Potash is also recovered from various wastes, such as molasses, distillery waste and Steffins waste water. A nice quantity is also obtained from wood ashes, tobacco stems and the by-product of beet sugar factories.

How does the total production compare with the requirements?

In 1913, about 248,000 tons of actual potash were imported into the United States. The following table shows the amounts manufactured during 1918:

Natural brines	147,125	39,255
Kelp	14,456	4,292
Dust from cement mills	11,739	1,429
Molasses distillery . .	9,505	3,322
Alunite waste	6,073	2,619
Steffins waste water	2,818	761
Wood ashes	609	365
Other sources	262	92
	192,587	52,135

This amounts to about 52,000 tons in 1918. Therefore the production for that year is approximately one-fifth the amount imported in 1913. Some of these sources have since reduced their output so that in 1919 it is believed only 30,000 tons actual potash were produced.

Bull. 29, already referred to, states in 1919 "that potash salts have not been produced in Canada on a commercial scale." Definite figures for the "actual potash" imported are difficult to obtain. The value in 1913 was, however, $503,702.

It would appear, therefore, that the American Continent is supplying from various sources about 20% or less in 1919, of the total potash requirements. These sources may be divided into the natural ones, brines and alunite, and the recovery of potash as by-products from various wastes, cement mills and blast furnaces; the last two offer the two best potential sources of supply in Canada; while in the United States it would seem that the natural brines alunite and the recovery from cement mills offers the most hopeful source.

In the meantime what is Europe producing? The French now have control of some of the mines. Also some potash is produced in Poland. These questions will be discussed at some future date.

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This would be a dreary old world if there was no fools in it to make it lively.

Women in Agriculture.

By MISSES GRAHAM and HEMMING,'22.

IN medicine, law and other professions belonging in the past to men, women have entered and achieved success. In practical farming they have done the same, but usually it has been when a woman was left with a farm, and it was a case of manage or starve. Now that women are entering Agricultural Colleges, the questions are asked: Why ? Can they do it? What do they intend to do with a degree of B.S.A.?

These questions are not so hard to answer. There is no reason why a woman should not be interested in agriculture. Women are human beings and have widely diversified tastes. Not every woman takes to housework kindly, though she may be able to adapt herself to it when the need arises. She may prefer the great outdoors, the work among growing plants and animals. She may have no desire to sit in front af a type-writer and pound out meaningless letters dictated to her by some one else. Why should a perfectly good farmer make a very poor stenographer? It is customary for a woman to become a stenographer, it is somewhat unconventional for a woman to become a farmer.

Many people have the idea that although a woman might be able to scrape through a four year course in agriculture, she could go no further. During the war women unaccustomed to hard work proved that with training they could perform almost all of the work on a farm, and were much benefitted by it. There are, however, some branches of agriculture that are more suited to women than others. There are great possibilities for women in such branches as Horticulture, Apiculture, Entomology, Botany and Bacteriology. There is no reason why a woman could not do such work as successfully as a man. Here also there is a chance to satisfy one's personal tastes still further and at that work which a person likes best they are most successful.

There is a woman graduate of Macdonald College working on Grain Rusts under the Dominion Government. Another graduate is engaged in poultry work. A third is farming. A fourth is teaching horticulture. In the future we are going to have Consolidated schools in which both domestic science and agriculture will be taught. A woman with a B.S.A. degree and a Normal Course in domestic science could teach both these subjects. No mere man would dare do that even if he were capable.

Women are the buyers of the world. Go to a market anywhere and you find women buying and selling. The women are "the consumer" that we hear so much about objecting to the high prices. In many cases they are justified. But they do not understand the reason for these prices. There is such a lack of sympathy between the country people and the city people. A woman graduate of an Agricultural

College could do much to help other women get the viewpoint of the producer. The average city woman also knows very little about what she is buying. When she gets produce of poor quality she blames the farmer, and yet possibly she has walked right by first-class produce without recognizing it. Much needs to be done to educate the people along this line.

No one asks why girls enter a B. A. course. Yet when they are through they are not fitted for any special work. In an Agricultural College many subjects are taken up, interest aroused and sympathies broadened. A definite subject is specialized in and one may carry it on as a life work. If a woman enjoys her work much of her pleasure in life will be derived from her work. If a woman is suited to the work there are just as many possibilities in agriculture for her as for a man.

—"APRES LA GUERRE"—

The Harvesting.

HAUPTMANN Ernst Obermann, officer commanding the 261st Bavarian Field Artillery, unclamped the field telephone from his close-cropped iron grey head, and reached for his map case. "Kellner remains in charge here; Wulfgang comes up to the guns with me," he directed, fitting on the heavy shrapnel helmet and clattering up the dugout-stairs to open air. There was a hasty "Zu Befehl, Herr Hauptmann," and an instant later the young Lieutenant Wulfgang joined him; together they set off up the shell-torn road between ripening wheat-fields, toward the front. The guns stood wheel-deep among the uncut wheat; cunningly contrived screens of wheat covered them, and wheaten camouflage, glimmering black, silver, gold in the uncertain light, hung in fringes above their projecting muzzles.

It was late—just past midnight—and the roads were beginning to clear. The ammunition carts and ration wagons were coming back from the guns, jolting and rattling over the rough track. Here and there a howitzer flashed and barked, and a shell wailed mournfully away in the distance; occasionally a far-away thud heralded the howling approach and metallic report of an answering shell; but the front was quiet. There was none of the dull, ominous rumble which had disquieted the German command on previous nights; the shelling was desultory and aimless; the night was so silent that the Hauptmann and his companion could hear far away on their left the swish—whang—crash!—of a bombing plane at work, and thought that they could distinguish in the unusual hush the hiss of the ascending Véry lights which rose, hung, and faded over No Man's Land, two kilos to their front. Far to the right the sky flamed suddenly, the earth shook slightly beneath them, a soft "plouf—pluff—flouf" reached their ears, and they knew that to-morrow's communique would bear the statement that "on the Sacreville sector, Allied ammunition dumps were exploded by our artillery fire."

In spite of the stillness—perhaps because of it—Obermann felt vaguely uneasy. According to the information he had received from his Oberst that evening, the combined French, British and American attack to the south had been completely broken up; the Montdidier—Soissons—Rheims salient had been successfully evacuated; Canadian infantry had been identified in the north preparing an assault on Mount Kemmel which would prove as costly to them as Passchendaele; the Australians were known to be greatly weakened by their counter attacks of the late spring; and no Allied army had sufficiently recovered from the heavy losses of men and material sustained in the great drive to launch a fresh offensive. On this Amiens front all was quiet, and likely to remain so, this morning of the Eighth of August, in the year of grace and slaughter, 1918.

Nevertheless, the Hauptmann felt a restless disquietitude stealing over him. As the pair turned off the main road into the ripe wheat field in which his battery-position was concealed, this feeling was intensified;—in Bavaria the grain-fields would also be ripe, and the women reaping; their husbands and sons had died at Fannenberg, at the Marne and Ypres, in the blood-baths of the Somme, before Warsaw, frozen in the Carpathians, shattered by the mines of Vimy and Messines Ridge, weltering in the mud of Passchendaele, mowed down in swaths in the last great drives; and those few who survived, broken for life or dodging imminent death from day to day. And still the ghastly game went on. These English—and the kilted Scotch—and the tall Colonials—would they never be conquered—never submit? Millions slain — and still millions! Their man-power seemed inexhaustible. The Fatherland was drained of manhood for a century to come; too high a price for world-empire—even if world-empire were still possible.—* * * *

"Herr Hauptmann!" He looked up into the flushed, accusing face of the youthful Lieutenant Wulfgang. Still in his meditative mood he thought of the boy as he had known him,—centuries ago, it seemed, yet after all, just four years,—a round-faced eighteen-year-old in Professor Obermann's classes in the staid old Bavarian University town; surely this stern, lined face with the hard and haunted eyes was not the same; and yet—; how cruel, how tragic it was, this murder of the youth of the world—— * * * *

"Herr Hauptmann! You have been thinking aloud!" Again the accusing voice broke in upon his thought. "Such thoughts are treason;—treason to Emperor and Empire, and to our German destiny! We Germans are the over-lords; we are the leaders, the rulers, the supermen! These sport-soft English and their hireling Colonials can never over-rule our destiny!" The boy's voice broke with excitement; a group of gunners standing rigidly to attention near the first gun of the battery broke into an instantly-suppressed cheer under the spell of his intense conviction.

* * * * *

There came a whine, a scream, a roar, a clanging crash; a tall black spout of earth leaped into the air; tree-shaped like that fatal tree which Mount Vesuvius bore of old over doomed Pompeii. The gun whirled like a live thing, striking down the gunners. The earth reeled with noise; rending, tearing, fiendish, soul-shaking clamor; the sizzling shriek and sharp, double report of shrapnel, the savage screech and whip-like crack of high explosives, the vicious ringing whir of ricochets, all against a background of lesser noises,—the rapid thudding of the Allied field-guns, the sudden riveting clatter of machine-guns, the whistles calling up the gunners. Hauptmann Obermann went down unconscious; and the youthful Lieutenant Wulfgang, with a look of black amazement upon his tired young face, toppled sidelong to earth. The grey steel helmet rolled away; a thin stream of red began to trickle through his fair curls; and his outspread fingers clutched and drew over him the brown-and-golden nodding-headed wheat.

* * * *

Twenty minutes later Hauptmann Obermann came dazedly back to earth to find himself a prisoner; Canadian infantry marching across the fields; Canadian cavalry and artillery thundering down the roads; Canadian gunners reversing his battery to fire German shells at German backs; while on the flanks Australians, English and French strove to keep the pace the Canadians were setting.

* * * *

Far away the guns were flailing other fields of wheat.

The Veteran

In the shade of the old apple tree
Where the snow and the rain blow
so free,
It's no place to store
The binder and mower
And implements there that you see;
For the rust and the rot you'll agree,
Are worse than hard usage would be,
And the paint that they wore
Is a shade, nothing more—
Just the shade of the old apple tree.

THE O A C REVIEW

ODELL

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EDITORIAL:

The President.

ALMOST at the close of the term the Minister of Agriculture announced that Dr. Creelman had resigned as head of the Ontario Agricultural College to go to London as the representative there of Ontario. At the same time, the appointment of President J. B. Reynolds, of the Manitoba Agricultural College as Dr. Creelman's successor, was confirmed.

No staff change of a like importance has taken place at the college for a number of years. It excites feelings of regret, in the loss of one whose name has been coupled with that of the O.A.C. for nearly two decades, and of satisfaction that his place is to be filled by one so thoroughly qualified to take it—— a man whose experience and sympathies with the work of the institution are unquestioned. In this issue we publish Dr. Creelman's validictory message. In reply to it, on behalf of the student body and alumni of the O.A.C., we would extend to him and to his family, every good wish for their life overseas, where, we feel sure, Dr. Creelman will worthily represent a great province.

Mr. Reynolds needs no formal welcome to this college, where his name has been familiar long after he left it. He is preceded by a reputation which assures him of the respect and good will of the student body that will greet him in September, 1920.

O. A. C. Veterans and the S. S. B.

THE relations between the Soldiers Settlement Board and the O.A.C. veterans, in the matter of getting positions, leaves an unfavourable impression of the business methods of that organization. Early in the spring term, a representative of the Board addressed the returned men, and led them to believe that fifty or more upper year men could be placed for the summer months, at a salary very satisfactory to the average undergraduate. Names were handed in, and the veterans gave little thought or worry to the question of the summer job. The men who had not been overseas, quite naturally, took most of the jobs that agricultural undergraduates usually work at in their summer holidays. Then, almost at examination time, letters and telegrams began to come in, cancelling the applications from some authorities, accepting them for others. Many of the men, completely at sea, were glad to take any other job that they could find. Several, who were disabled, were left without any position at all. Only the prompt action of the G. W. V. A., which got into touch with Ottawa, was able to straighten out the tangle to a certain extent. Whether this muddling was due to a lack of centralization in the S.S.B., with too many in authority, we are unable to say, but at all events, such equivocation with returned men is entirely inexcusable.

* * *

The Canadian Poets.

A NATURAL respect and love for the great literature which the old land has bequeathed us, should not deter us from giving our own poets their proper due. To a Canadian, born to Canadian ideals, raised amid Canadian scenes, the poems of Lampman and Scott, Carman and Campbell and Roberts, should have a far greater appeal than they seem to have to-day. Poetry, after all, is only the most musical and beautiful expression of our own thoughts and feelings; and any Canadian who has not himself felt the things that these men have put into words for him, is undeserving of the name. Many men, students included, have an instinctive distaste for poetry as being too milk-and-watery, too dinky, for the things of everyday life. Perhaps the method of teaching poetry is at fault; perhaps it is the man. Unless a poem strikes some responsive chord in the reader—making him feel that it was written for him by someone who had seen life as he sees it—it is no more to him than a pretty jingle. Some poetry suits some men more than others, and, it may be, only at certain times or in certain moods. To inculcate a love of verse by requiring students to stick to an arranged program of reading is extremely difficult—if not impossible. And once a man has a genuine love of poetry ingrained in his nature, no further urging is needed. "Plugging" poetry is like cleaning fine gold with stove polish.

Our Canadian poets should appeal

to none more than to agricultural students, who live in closer touch with the true life of our country than those of any other faculty. And yet the Massey Library does not contain a complete set of even our major poets. This deficiency is not the fault of the student body, and should be remedied without delay.

A Chance for Co-operation.

AS a means of encouraging students to contribute more largely to the "Review" than they have been in the habit of doing, we would suggest that articles published in its columns be marked and credited by the English department in lieu of being handed directly to them. If such an arrangement were unsatisfactory, we maintain that the best material handed in to that department, should, after having been marked, be submitted to the "Review." Few students care to write several articles in a term, and where an essay is handed in for marks, and the "Review" can offer nothing, it stands to reason that more time and thought will be given to the former. The "Review," which is a criterion of the English work at the O.A.C. for graduates and outsiders, deserves the very best that the student body can produce.

Late, but Acceptable!

THE college veterans learned with considerable pleasure, just before the term ended, that the Provincial Government had decided to refund the tuition fees for 1919-20 to all returned students resident in Ontario, who were not receiving other aid. This announcement came from the Minister of Agriculture, the Hon. Manning Doherty, who said that the money would be available in May. The Ontario Government in taking this course of action, is falling into line with the Western Provinces, which have aided their returned students to a like extent. Much credit is due to the college veterans' association for the energetic way in which they kept the matter before the government, and to Prof. Blackwood and Mr. Wright, who represented the faculty. This is merely a case of justice for men who were forced to leave their studies to fight, and whose earning power was cut off when they returned to college.

When tillage begins, other arts follow. The farmers therefore are the founders of human civilization.—Daniel Webster.

ALUMNI

G. J. Arnold, '18, has recently left for British Columbia.

J. N. Allan, '14, is now managing a farm and running a creamery at Belleville, Ont.

Cecil Tice, '19, has recently been appointed Soil and Crop Instructor for B. C., with his headquarters at Victoria, B.C.

W. B. Elder, an Associate of '13, is farming at Hensall, Ont.

J. Bucannon, who formerly was Secretary of the Iowa Experimental Station Association, has left that position to become County Agent for Storey Co., Iowa, with headquarters at Nevada, Iowa.

I. I. Devitt, an Associate of '96, is farming at Freeman, Ont.

J. E. Bower, '06, has a dairy business at Lakeland, Minn.

A. M. High, '99, is at present in the lumber business at Killarney, Man.

List of Graduates

(Continued from April Issue)

1892—G. F. Marsh, Clarkburg, Ont., Farmer.
1889—H. A. Morgan, Expt. Sta., Knoxville, Tenn., Director.
1890—Hon. N. Monteith, R. R. 2, Stratford, Ont., Farmer.
1892—R. N. Morgan, New Orleans, La., Merchant.
1896—R. B. Maconachie, Lindsay, Ont., Minister.
1897—J. C. Macdonald, "Family Herald," Montreal, P. Q., Agric. Editor.
1899—F. R. Mallory, Frankford, Ont., Farmer.
1899—F. R. Marshall, Dept. of Agric., Washington, D. C., Sheep Specialist.
1899—G. H. Murdock, Wyevale, Ont., Farmer.
1900—C. E. M. Mortureux, Dept. of Agric., Ottawa, Chief Translator.
1902—L. A. Moorehouse, Dept. of Agric., Washington, D. C., Prof. of Agronomy.
1902—Jas. Murray, Nobleford, Alta., Farm Manager.
1905—A. W. Mason, O.A.C., Guelph, Assistant Experimentalist.
1905—R. E. Mortimer, Honeywood, Ont., Farmer.

1906—J. F. Munroe, Washington, D. C.
1907—R. W. Mills, 39 Rose Ave., Toronto.
1906—W. A. Munro, Rosthern, Sask., Sup't. Expt. Farm.
1908—C. Murray, Dept. of Agric., Dauphin, Man., Agric. Rep.
1910—R. L. Moorehouse, Copper Cliff, Ont., Agric. Expert.
1911—C. Main, Napanee, Ont., Agric. Rep.
1911—F. N. Marcellus.
1910—P. H. Moore, Essondale, B.C., Sup't. Colony Farm.
1912—R. Macdonald, Deceased.
1912—M. S. Middleton, Vernon, B.C., Farmer.
1912—R. H. Murray.
1913—F. E. Millen, O.A.C., Guelph, Prof. of Apiculture.
1914—G. O. Madden, Napanee, Ont.
1914—J. Miller, Dept. of Agric., Toronto, Field Crop Specialist.
1915—G. Nanton, Eglington, Ont., Florist.
1914—L. A. Moseley.
1914—J. A. C. Moore, Islington, Ont., Farmer
1915—G. Mucklow, Killed in Action.
1916—N. R. Martin, Springfield, Ont., Farmer.
1916—W. P. Macdonald, Petrolia, Ont., Agric. Rep.
1917—W. G. Marritt, Hamilton, Ont., Agric. Rep.
1917—I. B. Martin, S. S. B., London, Ont.
1917—F. K. Merkley, Agric. College, Ames, Iowa, Assistant in Dairying.
1917—F. G. Murdoch, R. R. 6, Guelph, Farmer.
1918—A. D. Munro, Farm Survey Dept., O.A.C.
1918—G. W. Michael, Sherkston, Ont., Farmer.
1918—A. V. Mitchener, Man. Agric. College, Winnipeg, Lecturer in Horticulture.
1918—R. W. Maxwell, Woodstock, N. B., Prin. Vocational School.
1919—D. J. Matheson.
1919—J. B. Munro, Ottawa, Ont., Assoc. Editor, "Agric. Gazette."

Engagements

The engagement is announced of Ellen Cecil, daughter of Mrs. Frances Morrison, Owen Sound, to Robt. Jonathan Skelton, B. S. A., of Vancouver, B. C.

Mr. Robert Elliott announces the engagement of his daughter, Mahalah, to Mr. Charles Clinton Duncan, B. S. A., only son of Mrs. A. Duncan, Vineland Sta., Ont.

Marriage

Hawley-Barber

On Monday, April 12th, at Picton, Ont., the marriage was solemnized of Doreen, daughter of Rev. Lewis F. and Mrs. Barber, of Picton, to William M. Hawley, son of Mr. and Mrs. F. M. Hawley, Jarvis Street, Toronto.

Sink or swim, live or die, survive or perish, I give my hand and heart to this vote.—Daniel Webster.

MACDONALD

The Saturday evening dance, April 10th, was an occasion for welcoming another group of Short Course students.

The Executive of the Y. W. C. A. acted as an Introductory Committee.

The examinations were a barrier in the way of some gentlemen across the campus, but much to the relief of the girls, a few all-conquering heroes did not find this barrier insurmountable.

The members of the Y. W. C. A. Committee found their task of introducing the newcomers an easy one, because the gentlemen soon took the responsibility into their own hands, and if one could have read their thoughts, they would perhaps be along the line of:—

"Give me an introduction,
Give me the girl,
And leave the rest to me."

D. B. W.

Who Was It?

The other morning when the Senior Chemistry Class had finally settled down to the early Chemistry period, a bright dazzling light suddenly flashed across the gloomy room. Now, as everyone knows there is only one cause for that particular kind of light and it is a mirror held in the sun. So very, very casually every Senior head turned with one accord to find out from just which room in the boys' residence the light was emanating. Surely no upper year man would unbend from his dignity sufficiently to flash mirrors in the early morning hours, at innocent Seniors shut up in a classroom! No, that is incredible, it must be freshmen on the third floor. But there he was—a third year man standing there in the sun, a mirror in his hand. On second thought, we have come to a more merciful conclusion. Perhaps the innocent youth was merely standing in the window gazing at the reflection of his own manly beauty before setting out for the morning's examination.

Macites have all kinds of privilege now that the men have gone. They are allowed to go walking until dusk on the campus, to go to church in the evening—but then as one of the Homemakers remarked wearily: "What's the use?"

A Welcome to the Short Course Girls

Scene—Students' Sitting Room at Macdonald Hall.

Time—Just after dinner at the beginning of the spring term.

1st Homemaker—"Well, have you seen the new Short Course girls?"

2nd Homemaker—"Yes. What do you think of them?"

1st Homemaker—"Pretty fussy lot, I'll say."

2nd Homemaker—"Yes, I think so too. They ought to liven things up this term. They've begun to get over those first awful pangs of homesickness already, and sit up and take notice. 'Member when we felt that way?"

3rd Homemaker—"Well I guess we all do at times, but we mustn't begin feeling sorry for them. We are not having this meeting to word our unanimous vote of sympathy to the poor children who have been thrust into our midst. We're here to plan some original touches for their costumes for the next few days."

4th Homemaker—"Yes girls let's get to work. Now what shall we make them do this time?"

5th Homemaker—"How would this do? At my cousin's school they had to————

But we will not intrude farther on the deliberations of this class of girls as they work together to plan an initiation preliminary which would be worthy of the class they are to initiate into the secrets of Mac Hall modes. Suffice it to say that the Short Course Class for the spring term 1920 are with us, and we will withold nothing from them. We welcome them to the fun and frolic of Mac. Hall. We also welcome them to the trials and tribulations of Mac Hall life, and alas there are many, of which marmalade splash, mice, and an outlook of menless days to come are not the least.

In the short time the new girls have been with us they have entered heartily into the life of the Hall and we are sure they will prove an agreeable addition to our numbers during the remainder of the term.

V. A. D.

March 23rd will long be remembered by the students of Mac Hall when they had the pleasure of hearing Dr. Murray, of Neepawa, Man.

Dr. Murray was in Toronto attending a meeting of the Home Missions Board and spent Sunday with his daughter, Sarah Murray, of our Junior Normal Class. His daughter and some of her intimates entertained him at tea, and the students then took the opportunity of having him tell them of some of his work in the West. He showed them how the girls' field of opportunity had widened and told them of girls' work on Mission Fields and in Indian Schools, especially during the war.

His short talk, needless to say, was much enjoyed and appreciated by the students, and they hope they may have further opportunity of hearing him.

M. B. H.

In connection with the teaching of Domestic Science in schools, Annastien Richardson says: "The newer educational movement is toward a readjustment of the course to meet the peculiar needs of the 20th Century child. Those who lead the movement maintain that we have been teaching the child how to study but not how to live. We have been giving them the right viewpoint for studying books, but the wrong methods of meeting life's stern realities. Educational prophets predict that . . . . . the present courses of studies will fall like so many houses of cards and from the ruins will rise a new structure of practical schoolroom work in which hands and bodies as well as minds will be trained."

"Money spent in training the body pays a higher rate of interest than any other investment."—Gladstone.

Basket-Ball

The bug bear of examinations in no way put a damper on the final inter-year Basket-ball games. Both rooters and players showed up in the best of form and the games proved to be some of the most closely contested and exciting of the season.

When the first year participated special mention must be made of "Bub." Zeigler's all round effectiveness, while for the Sophomores Fidlar deserves a lot of credit for the sturdy and efficient manner in which he played the game and handled his team. The third year presented a strong line up and it would be difficult to contrast the individual merits of the players. All who witnessed the final game between the third and fourth years, however, will agree that Zeigler, Smallfield and Pegg took some watching.

For the fourth year, Harry Rowland, at left forward, was a shining light in all the games, and contributed in no small measure to the "bringing home of the bacon." The Seniors have a hard checking team and they are good shots, and to watch Bill Bissett ploughing through on one of his famous rushes or to see "Freddy" O'Dell bouncing off the members of the opposing team or Old Wiggins laying one gently home to rest are rare treats that we are going to miss next year.

The fourth year certainly had the best team and they deserved to win the championship, but the other years also came in for a lot of credit for the excellent line ups that they were putting on the floor at the last of the season.

Our new maxim—"Athletics" for All!

Next Year's Athletic Programme

The following is a brief outline of the Athletic Programme for next year:—

(1) Students who had had previous athletic training to act as leaders in the different branches of sport—to coach in boxing, wrestling and track and instruct in athletic games.

(2) Promote a fuller program of inter-year athletics by having schedules in more branches of sport. Inter-year competitions in the following sports: Rugby, soccer, play ground ball, push ball, volley ball, outdoor basket-ball, Boxing and wrestling, track (twilight meets), cross country runs, tug of war, tennis and aquatics.

(3) For those students who do

not take part in sports, two compulsory periods a week will be given in which they will be instructed in athletic games, field and indoor events, swimming, boxing and wrestling.

The Athletic Meeting

At the Athletic Meeting held in Massey Hall March 30th for the purpose of stirring up some new life in athletics, a fuller programme and course of training was proposed and adapted by the student body and faculty. Both factions were well represented and standing room was at a premium long before the first speaker arose.

Professor Blackwood, Honorary President of the Athletic Association, in a clear and forceful address, pointed out to the students and members of the faculty their duty in regard to athletics and themselves.

Dr. Creelman, Prof. Wade Toole and Prof. Crowe also commended a fuller programme of athletics, and there is no doubt that if the student body and faculty show as much interest and enthusiasm next year that the success of the enterprise is assured.

Physical Training in Colleges

In the past few years the college authorities have come to realize the supreme importance of bringing physical culture to the front in educational work.

They are realizing that the Universities are responsible for the ignorance among the alumni of the college regarding the care of the body; as it is a well known fact that eighty per cent. of graduates die from ten to thirty years before the age which they should. They are also realizing that under the old method less than fifty per cent. of the students are engaged in any form of systematic or organized exercise. This is due to the fact that our colleges were, and some are as yet, fostering two classes—one class attends for social and athletic advantages, and the other attends largely for intellectual opportunities. The first class is inclined to neglect mental work and carry athletics to excess, while the second class is inclined to neglect physical training and carry mental efforts to excess. Neither class lives strictly hygienic lives.

Now our colleges are adopting new methods to eliminate such conditions and are awakening to the fact that physical education has a legitimate place in the college curriculum.

1. Intra-Collegiate sport and recreation, in addition to our inter-collegiate sports, with the constant purpose in view of usefulness in after life. This gets the spectators on the side-lines and promotes interest by friendly rivalary.

Organize the required activities on the basis of athletic sports rather than on gymnastic basis, giving the student games if normal physically, if not to take remedial gymnastics until fit. It is necessary to have a wide range of sports, games and physical activities, and a plan to encourage more general participation in them.

3. Exercise taken systematically and at regular intervals.

4. A subject with required attendance.

5. Strength test upon entering

and at the end of each year so the student may realize the benefit derived from systematic training.

6. Encourage the type of physical exercise that a student is likely to use in after life.

7. Teach fundamental principles of hygienic living.

8. Increase facilities for out-door sports in Winter and Summer.

By this system and with efficient leaders in physical training or athletics more than ninety per cent. of students can be reached instead of fifty per cent. as before; and by these methods we are providing more athletic students and less student athletics.

K. W. Forman.

Organization for Promoting the New Athletic Programme

- Athletic Association (Student Body and Faculty)
  - Athletic Executive
    - Director of Athletics and Sports Managers (Faculty)
      - Leader Corps
        - Director of Sports (One for each sport)
          - Leaders
      - Inter-Year Directors or Year Reps. (One from each year)
        - Inter-Year Managers (One for each sport)

* * *

When in the ranks of life we take our place
Toiling for pleasure, love, or selfish greed;
When from the glowing past of youth we face
The struggle of reality—and lead
Our manhood to the test of happiness
And right of name of man; when all desire,
Of merit personal to give no less
Of silent help, sound friendship, living fire,
Of faith to fellow men, is strong and keen;
Then shall we see thy worthy lessons taught
By chances missed and well remembered voice,
Then shall we realize what might have been,
And feel thy strength to battle as we ought,
Lighting in thy proud name as we rejoice.

H. C. Fricker, '23.

Extra

Strong

WE have one style of Man's Watch which is very stout and heavy without being at all clumsy.

The case is best gold-filled, with solid gold joints, thumb pieces and bow, while the movement is our **"Cavendish"**, with patent regulator Breguet hair-spring and compensating balance—an exceptionally fine watch **for a man who is doing heavy work.**

THE PRICE IS ONLY in best gold-filled case **$35**
or
$60 In Solid 14 karat Gold

Ryrie Bros.
Limited
134-136-138 Yonge St.
TORONTO

Mother Goose on the H. C. of L.

Jack and Jill went up the hill—
That fact is not surprising;
They should deside to go still higher:
All other things are rising.

Mary had a ton of coal,
She worked ten years to earn it;
She froze to death the other day—
She couldn't bear to burn it.

Sing a song of sixpense,
A cellar full of rye;
But not a single drop of it
For sixpense could you buy.

Old Mother Keller went to the cellar
To get her poor daughter a drink;
But when she got there the cellar was bare,
So she led the poor girl to the sink.

Little Bo Peep has lost much sleep,
But it isn't any wonder,
She lost her flock of wooly stock
With mutton high as thunder.

Little Jack Horner dropped in at the corner,
A luncheon to buy one day,
But he grew very ill when looked at the bill,
And his appetite vanished away.

There was a man in our town
And he was wondrous wise,
He could unscramble scrambled eggs
And un-cuss custard pies.
But now he's talking to himself
Within a padded cell—
He tried to figure out a way
To beat the H. C. L.

Give
Neilson's
THE CHOCOLATES THAT ARE DIFFERENT

Sidelights

(To be read with a sponge)

There ain't no nothing much no more,
There's nothing ain't no use to me,
In vain I tried this lonely shore,
For I have saw the last of thee.

I seen a ship upon the deep
And signalled this here fond lament,
I haven't did a thing but weep,
Since thou hast went.

Alas, for I ain't one of they
What hasn't got no faith in love,
And them fond words of yesterday
Was spoke true, by heaven above!

It is all off 'twixt I and you,
Will you go wed some other gent?
The things I done I'd gain undo,
Since thou hast went.

Oh, Love! I done what I have did,
Without no thought of no offense,
Return, return! I sadly bid
Before my feelings get intense.

I have gave up all wealth and show,
I have gave up all hope of game,
But, oh, what joy 'twould be to know,
That thou hadst came.

Buckland, at Square, waiting for car—"Gee, kid, you look sweet enough to eat."

D., glancing toward Wyndham Inn—"Yes, I do feel hungry."

Build for Wear Without Repair

HOW long will a METAL SHINGLE roof last? Frankly, we do not know. Here, however, are certain facts and figures from which you can estimate for yourself.

The Jail at Simcoe, Ontario, was roofed with imported METAL SHINGLES in 1848, and the Court House with Canadian METAL SHINGLES in 1890. Both roofs are sound and watertight to-day—72 years for one and 30 years for the other.

METAL SHINGLES were first made in Canada in 1885. Of the roofs laid in the first ten years many are known to be still sound and serviceable.

The late Henry Glendeninng, former President, East. Ont. Dairymen's Assn., put METAL SHINGLES on his home at Manilla, Ont., in 1887. A letter from him in the Fall of 1919 says: "Roof still sound, has never leaked a drop, has never cost a cent for repairs."

Hundreds of thousands of squares of METAL SHINGLES have been laid on Canadian roofs in the past 35 years. How many fires they have prevented no one can tell. How many millions of dollars they have saved can only be a matter of conjecture.

Prices and full information from any of these firms:

The McFarlane-Douglas Co. Limited Ottawa

The Metallic Roofing Co. Limited Toronto

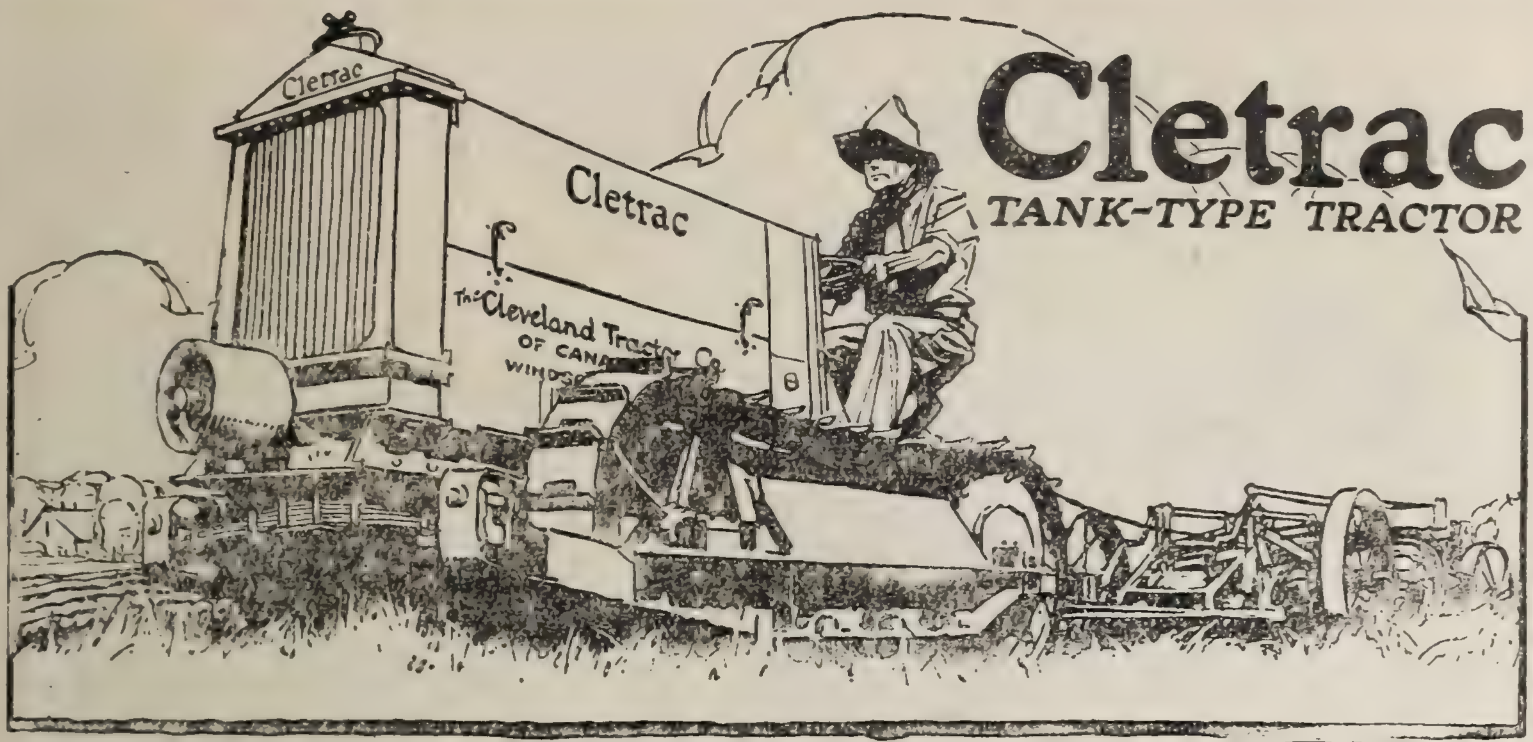
The Metal Shingle & Siding Co. Limited Preston

The Pedlar People Limited Oshawa

The Galt Art Metal Co. Limited Galt

Use METAL SHINGLES yourself and recommend them to others in the interests of Safety and National Economy.

26



Added Power — No Increase in Weight
Wider Tracks - Lighter Tread-Stronger Ground Grip

More kinds of Work More days in the year

CLETRAC WORKS ON SOFT GROUND

CLETRAC will always be *there* with power galore, even if the ground is soft or slippery. It lays down its own metal tracks and travels over them with a light, sure tread. Cletrac will not break an egg, buried one inch below the surface, but by the same token, it breaks records everywhere for *more kinds of work more days in the year.*

Its weight distributed over the 800 square inches of its broad tracks; Cletrac will not pack the soil, in cultivating, so much as a horse's hoofs. In seeding and harrowing, where the soft plowed ground "drags horses to death;" Cletrac glides *untiringly* along *over* the top. Is it any wonder that farmers, from the Atlantic to the Pacific, "Swear by" Cletrac as the *supreme soft ground tractor?*

As well as plowing, discing, seeding and harrowing; Cletrac will harvest or haul and it will do all sorts of belt work. It is easily operated and runs perfectly on coal oil, (kerosene). It costs less to buy or less to operate than six good horses and it will do a great deal more work.

There is a dealer in every locality who can supply Cletrac and every service needed with it — but for prompt delivery order should be placed right away.

The Cleveland Tractor Company of Canada Limited

Head Office
WINDSOR, ONTARIO

Western Sales Office
REGINA, SASK.

FARMERS' BUSINESS

For the past 54 years, this Bank has given particular attention to the business of Farmers.

We have helped many over the rough places, and have aided many more to the highest plane of success.

We are prepared to extend you every aid within legitimate banking practice.

Come in at any time and talk over your affairs with us. You are always welcome.

THE MERCHANTS BANK OF CANADA

Head Office: Montreal. Established 1864.
GUELPH BRANCH, ... J. G. DEWAR, Manager.

The branch solicits the accounts of Students.

The Merchants Bank, with its 133 branches in Ontario, 44 branches in Quebec, 1 Branch in New Brunswick, 2 Branches in Nova Scotia, 36 Branches in Manitoba, 46 Branches in Saskatchewan, 86 Branches in Alberta, and 12 Branches in British Columbia, serves rural Canada most effectively.

Gossip and prying into another's affairs are the outcome of a small, undeveloped mind. As Shakespeare put it: "What great ones do the less will prattle of."

Why do you maintain that it is unwise to make love in a buggy?

Don't you realize wear that horses carry tails.

That is an ancient pencil you are using, isn't it?

Yes, it is the one Cleopatra used to Mark Antony.

By the way, Stock, what is the idea of that long cigar holder?

Stock—Why you see the doctor advised me to keep away from tobacco.

Mac Hall Burglary

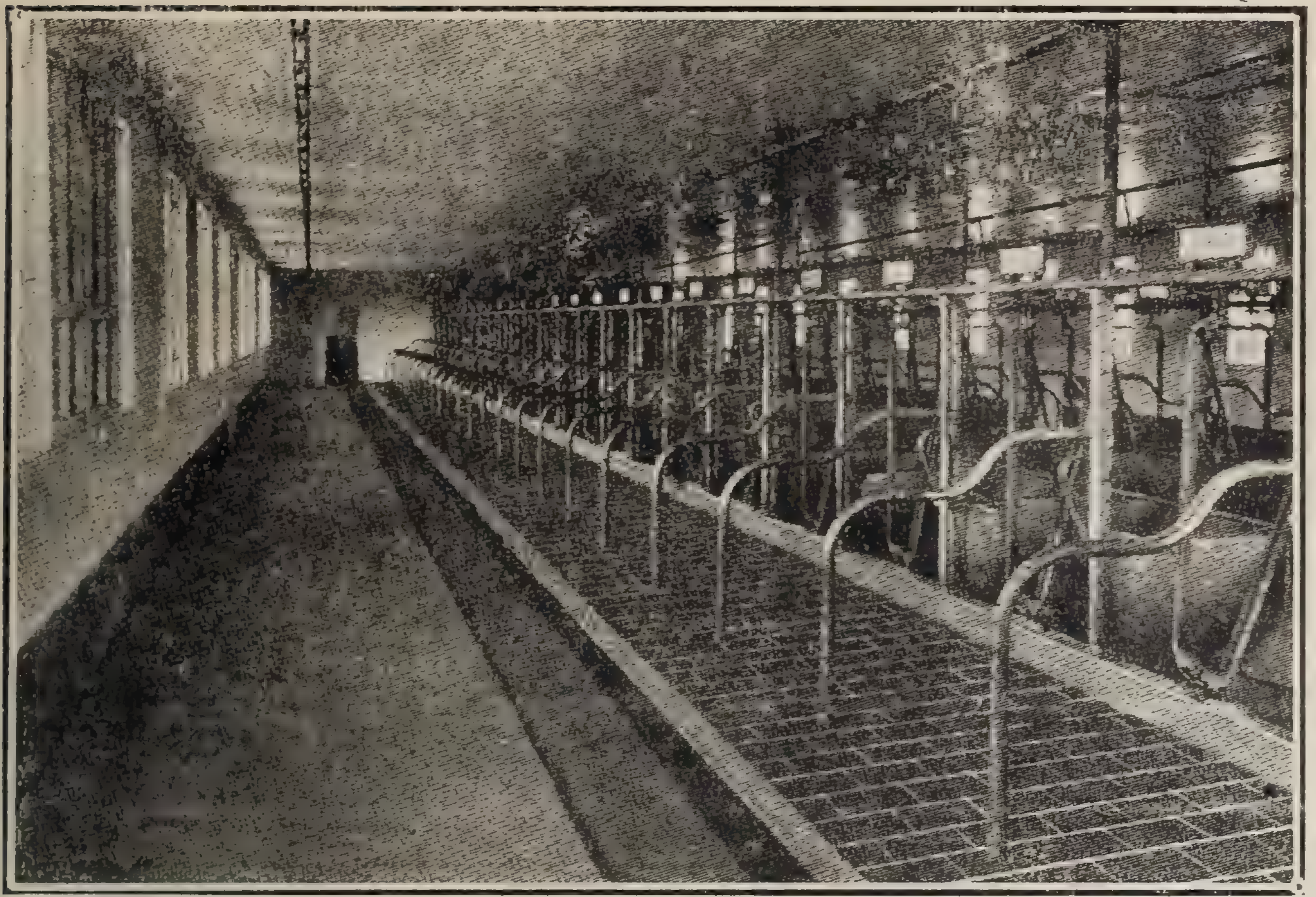
Mysterious disappearance of Cold Cream, a Diary, an Alarm Clock, and numerous other articles from the Girls' Residence.

House detective unearths important clue. The process of elimination points to the Junior Year as being the only ones having the intimate knowledge of the intricate windings of Mac Hall necessary to enable them to accomplish this daring feat.

In the postoffice, some fellows were discussing the "legitimate" show at the Griffith for that night.

Passerby—"What is it at the Griffith, anyway, to-night?"

Baldy—"Two dollars and twenty cents—no—four dollars and forty cents."



THE COW STALL FLOOR PROBLEM

Is solved for all time by use of **Cork Paving Brick.** These bricks possess all the good features of both wood and cement, with none of their faults. Cork brick are warm and resilient, non - slippery, perfectly sanitary and remarkable for durability in service.

Cork Brick Floors

Are used by hundreds of prominent stockholders in the United States and Canada, and also by many Agricultural Colleges and Government Experimental Stations.

Send for sample brick and booklet which gives particulars regarding this remarkable floor material. Both are free.

ARMSTRONG CORK & INSULATION CO., Limited
McGill Bldg., MONTREAL, QUEBEC

FIRST YEAR LOCALS

"Doc" Riley has discovered three serious cases of sleeping sickness among the freshmen. We hope he will be successful in combating this dread disease among his patients.

NEIGHBORS

There is an idea abroad among moral people that they should make their enighbors good. One person I have to make good: myself.

But my duty to my neighbors is much more nearly expressed by saying that I have to make him happy—if I may.

Robert Louis Stevenson

Mother (looking into nursery just as little Herman kisses his sister)—"It is pleasing to see how you love each other."

Herman, "Oh no, mamma, we're playing at papa and governess."

AUTOSTROP RAZOR

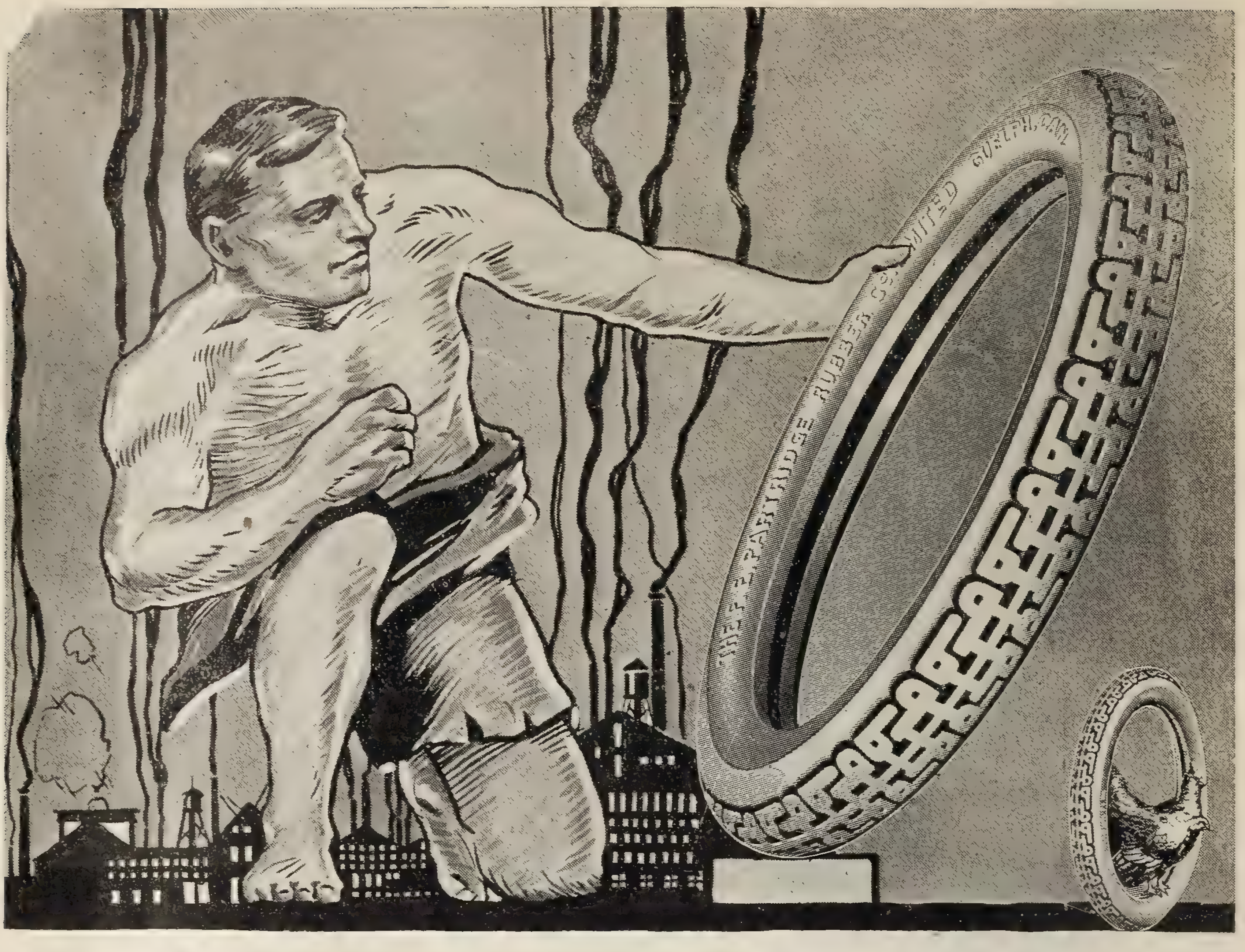
The self-stropping feature of the AutoStrop Razor provides you with a keen-edged blade for each shave.

Razor — Strop — 12 blades — $5

AutoStrop SAFETY RAZOR

We believe in it—so will you.

ALEX STEWART **Druggist**
Guelph Beside the Post Office


THE F. E. PARTRIDGE RUBBER CO. LIMITED GUELPH, ONT.

The Workman's Masterpiece

Partridge Tires

Made By Hand

by The F. E. Partridge Rubber Company, *Limited*. Guelph, Ont.

The orchestra was rehearsing for the concert, when suddenly there came some ear-splitting squeaks from the violin section.

"What are you doing?" roared the conductor.

"I'm sorry," said Halpenny, "it was a fly on my music, but," he added with professional pride, "I played him."

PUTTING ON SIDE

Doc. Edwards and Luke Pearsall took their lady loves for a drive the other Sunday afternoon. Doc. handled the reins over the pair of spanking greys, while Luke brought up the rear with his well known smile.

Mr. Moffatt, with miniature setup of farm, causes flash of lightning to run along a fence and leap to a horse in the field.

Mr. M.:—"Now,if that had been a live horse, it would have been dead by now."

Dick P.:—"Would you advise putting lightning rods on all farm animals?"

"Why is it, Stewie," asked Tommie, "that you fat fellows are always good-natured?"

"We have to be?" replied R. C. V., "You see we can't either fight or run."

LOVE LOGIC

Gwendolyn I love you.

Problem: To prove you love me.

1. I love you.
2. All the world loves a lover.
3. But I am a lover.
4. Therefore all the world loves me.
5. You are all the world to me.
6. Therefore you love me.

EVENING DEVOTIONS

Munro, "Please, God, make Timothy hay a good feed for a dairy cow."

Hart, "Why, Alex, what makes you say that?"

Munro, "I put it in my answer on the exam."

With Apologies to "Robbie Burns"

Since Nicotine seems less provoking
Unto those who do the smoking,
Would some kind power please compel 'em,
To smell 'emselves as others smell 'em.

—U. Nanimous.

Mr. Spencer often has some weird things to tell us about our cousins, the monkeys, and other animals, but it remained for Champ to startle us with his absolutely unique way of catching giraffes. Our "Poet Laureate," Mr. Fricker, in an impromptu effort composed the following:

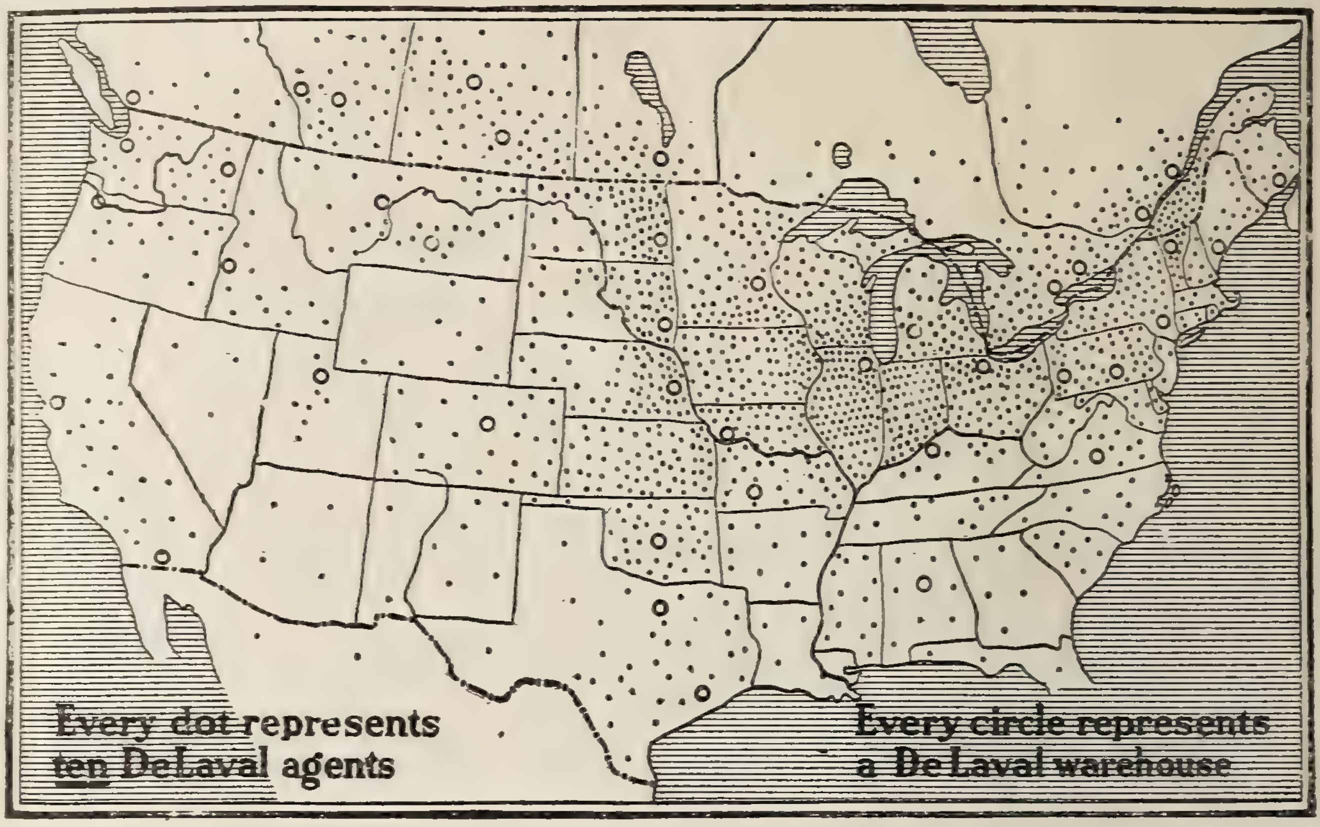
"To catch a giraffe
According to Champ,
You make it laugh,
Like a frivolous vamp.

And as it shakes,
Its sides with glee,
A rest it takes
Against a tree.

The tree cut down,
Makes the brute collapse,
Now kindness shown
Will tame—perhaps."

De Laval Service

COVERS THE CONTINENT


Every dot represents ten DeLaval agents
Every circle represents a De Laval warehouse

This map shows how completely the service of the De Laval organization reaches every community

Every separator user realizes the importance of having his separator in use every day. Delays waiting for parts, with a separator out of use, mean great inconvenience and loss of product

Every dot on the map represents ten De Laval agents, and every De Laval agent is individually trained to assist his customers in setting up and operating their machines, to furnish and put in place repair parts, and to insure prompt service and satisfaction to De Laval users.

Not only is the De Laval Cream Separator superior in all points of separator efficiency, but every user of a De Laval is assured of prompt and competent service for all the years to come.

It is therefore not surprising that there are more De Laval Separators in use than all other makes combined. Now is a good time to begin saving time and product by securing a De Laval.

The nearest De Laval agent will be glad to demonstrate a De Laval. If you do not know his name, write to nearest De Laval Office.

THE DE LAVAL COMPANY, Ltd.

MONTREAL PETERBORO WINNIPEG EDMONTON VANCOUVER

50,000 Branches and Local Agencies the World Over.

Guelph Business Directory

The attention of the O.A.C. and Macdonald Students is drawn to the following directory of Guelph business and professional men. Their advertisements help to make your magazine a success. They carry the best goods and give the best service you can obtain. It is only fair that you patronize them.

Banks—
- The Dominion Bank
- Guelph & Ontario Trust Co.
- The Merchants' Bank
- Royal Bank
- Union Bank

Barbers—
- Stock Donaldson
- Molloy & Finlay

Boots and Shoes—
- J. D. McArthur
- W. J. Thurston

Cafes—
- Dominion Cafe
- Central Cafe
- Presto Lunch

Candy and Ice Cream—
- The Kandy Kitchen
- Royal Candy Works, Wyndham St.
- Candyland

Dentists—
- Dr. M. J. Rudell
- Dr. G. P. Britton

Druggists—
- J. D. McKee
- Alex. Stewart

Dry Goods and Ladies' Wear—
- Moore and Armstrang
- D. E. Macdonald & Bros.

Electrical Appliances, Plumbing and Heating—
- The Grinyer Co.

Florists—
- James Gilchrist
- E. S. Marriott

Grocers—
- Hood & Benallick

Railways—
- G. R. Railway Time Table

Shoe Shine—
- Candyland Shoe Shine

Gents' Furnishings & Tailors—
- R. S. Cull & Co.
- D. E. Macdonald & Bros.
- R. E. Nelson
- Geo. Wallace

Hardware—
- The Bond Hardware Co.
- Cronk & Buchanan

Jewellers—
- Savage & Co.
- J. J. McTague
- W. G. Singer

Magazines and Newspapers—
- Geo. M. Henry
- Malone's News Stand

Musical Instruments—
- C. W. Kelly & Son

Opticians—
- A. D. Savage
- H. E. Davison

Photographers—
- The Kennedy Studio
- The O'Keefe Studio

Printing—
- The Guelph Herald
- Kelso Printing Co.
- Wallace Printing Co.

Pressing—
- C. F. Griffenham
- C. Millar Wallace

Shoe Repairing—
- Goodyear Shoe Repair Co.
- J. D. McArthur

Taxicabs—
- C. L. Kearns
- F. Keil

Typewriters—
- A. E. McLean

Picture Framing—
- W. C. Bard

Tea Rooms—
- Miss M. Richardson

Milliners—
- Miss Stockford

You will be doing the Review a service if you tell these people you have read their advertisement.

50 LBS LOW FREEZING CXL STUMPING POWDER
CANADIAN EXPLOSIVES LIMITED TRADE CXL MARK
CANADIAN CXL INDUSTRIES

Sixty-one Dollars Made $560 Possible

Two acres of stump land—$54 for stumping powder, fuse and caps—$7 for a helper, and J. V. Bradley blew out 78 stumps ranging from 16 to 35 inches in diameter. This is one of many things

C.X.L. Stumping Powder

will make possible on your farm. That $54 worth of stumping powder gave Mr. Bradley $40 worth of fuel, and the two acres produced a crop worth $520. It will do the same for you. It will make your waste land profitable at the lowest cost.

There is money to be made in agricultural blasting. Ask about it to-day.

Canadian Explosives Limited
Head Office, Montreal
Halifax Toronto Sudbury Winnipeg Vancouver

"Explosives for the Farm" tells what C.X.L. Stumping will do in your orchard. Write Dept. W for free copy to-day.

2

The man who neglects to apply the necessary fertilizer is taking even greater chances than the man who doesn'e take out fire insurance.

Get Your "SHUR-GAIN" Early

"Making two blades grow where only one grew before."

1920 Supplies are Uncertain

Our raw materials have come forward most irregularly, due to strikes in the mines some months ago, and the present railway car shortage and soft coal cut-off. Our advice is—go to your dealer and oredr a full supply of GUNNS "SHUR-GAIN," and arrange to take delivery without delay. Avoid the last-minute scramble to get your fertilizer. Users of Gunns "SHUR-GAIN" have told us that they have received $3 or $4 cash returns for every dollar spent on it.

Gunns "SHUR-GAIN" gives your soil the complete blend of nitrates, phosphoric acid and potash you need for bumper crops.

SEE YOUR DEALER TO-DAY:

Gunns SHUR-GAIN Fertilizers

Gunns Limited
West Toronto

Representatives wanted in unallotted territories

"ACCOMPLISHMENT IN THE DAIRY"

The increasing popularity of milk products is largely due to the education work of the Agricultural College.

The Agricultural College has not only demonstrated the exceptional food value of milk, but has also educated the dairyman in methods of manufacture that insure to the consumer a wholesome, nutritious dairy product entirely free from harmful bacteria and insanitation.

These methods have been assisted and made possible by the aid of

Wyandotte
Dairyman's
Cleaner and Cleanser

a cleaner which provides the most efficient, sanitary cleanliness to dairy equipment, and for this reason it bears the endorsement of the Agricultural Colleges of the United States and Canada.

Indian in Circle

On Every Package

Order from your Supply House.

It cleans clean.

The J. B. Ford Co., Sole Manufacturers. Wyandotte, Mich.,

The LONDON LIFE
Insurance Company

LONDON (Est.-1874) Canada

You get double protection when you buy an Endowment Policy at ordinary 20 payment Life Rate.

An old well established Company with unblemished Record.

Profit Results Unexcelled.

T. M. MATTHEWS - Representative

A HANDY POEM FOR HORSE OWNERS

To tell the age of any horse,
Inspect the lower jaw of course;
The sixth front tooth the tale will tell
And every fear and doubt dispel.

Two middle "nippers" you behold
Before the cold is two weeks old;
Before eight weeks two more will come,
Eight months the "corners" cut the gums.

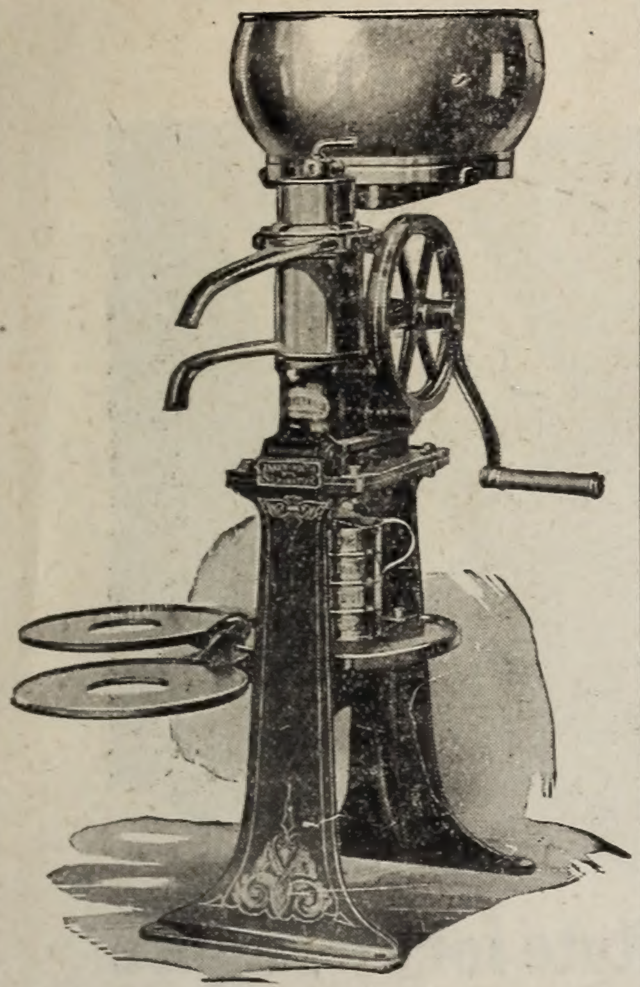
Two outside groves will disappear
From middle two in just one year;
In two years from the second pair,
In three the "corners" too are bare.

At three the middle "nippers" drop,
At four the second pair can't stop;
When five years old the third pair goes,
And then a full new set he shows.

The deep black spots will pass from view
At six years from the middle two;
The second pair at seven years,
At eight the spot each "corner" clears.

From middle nippers, upper jaw,
At nine the black spots will withdraw;
The second pair at ten are white,
Eleven finds the "corners" light.

—Russel Hollingshead, Sask., in Farmers' Advocate and Home Journal, Winnipeg.



OF COURSE

We use only high quality materials and employ expert workmen in producing

A Cream Separator

that has many distinctive and exclusive improvements

But

the one main feature in the ANKER-HOLTH that puts it in a class by itself is the ability of the bowl

To Balance Itself

See your agent or write

SILVERWOODS LIMITED

Ontario Distributors of
Anker-Holth Separators

London - - Ontario

CATALOGUES BOOKLETS
FOLDERS CIRCULARS
COMMERCIAL & SOCIETY
STATIONERY

Anything in printing from
the best that is made
to the cheapest
that is
good

The Advertiser Job Printing Co.,
LIMITED
London, Ontario

CORNER YORK AND WELLINGTON STREETS

PHONE 247 - 248

The Uncertain Human Substitute for an Empire

Empire users consider hand milking as out of date as cradling wheat. The man is an uncertain and costly substitute for the machine at best.

He gets sick—gets tired—gets cross—quits. He is subject to all the ills and faults of humanity. The Empire isn't.

It stays on the job 365 days in the year—year in and year out—is always uniform in action—gentle, soothing to the cows and milks the same way every day.

Empire reliability and correctness of design has established the milking machine. The Empire proved it could be done—not once but all the time. Thousands of users acknowledge this fact and profit by it.

Why not see our nearest dealer or write for catalog

"The Standard of the Better Dairies"

THE EMPIRE CREAM SEPARATOR CO., OF CANADA LIMITED,

Also manufacturers of the Separator with the MILLION DOLLAR BOWL

TORONTO and MONTREAL.

EMPIRE

MILKING MACHINES

YOUNG MAN!

A

TWO-YEAR COURSE

AT THE

ONTARIO AGRICULTRAL COLLEGE,

GUELPH, ONTARIO

IS EASILY WITHIN YOUR REACH

WHY?

Because—

Ordinary public school education is sufficient for adimssion to the Course.

The College Year begins September 17th and ends April 15th, so that students from the farm may return to their homes to assist in the spring and summer work.

Five months during the spring and summer gives many students opportunity to earn sufficient money to defray College expenses for the following year.

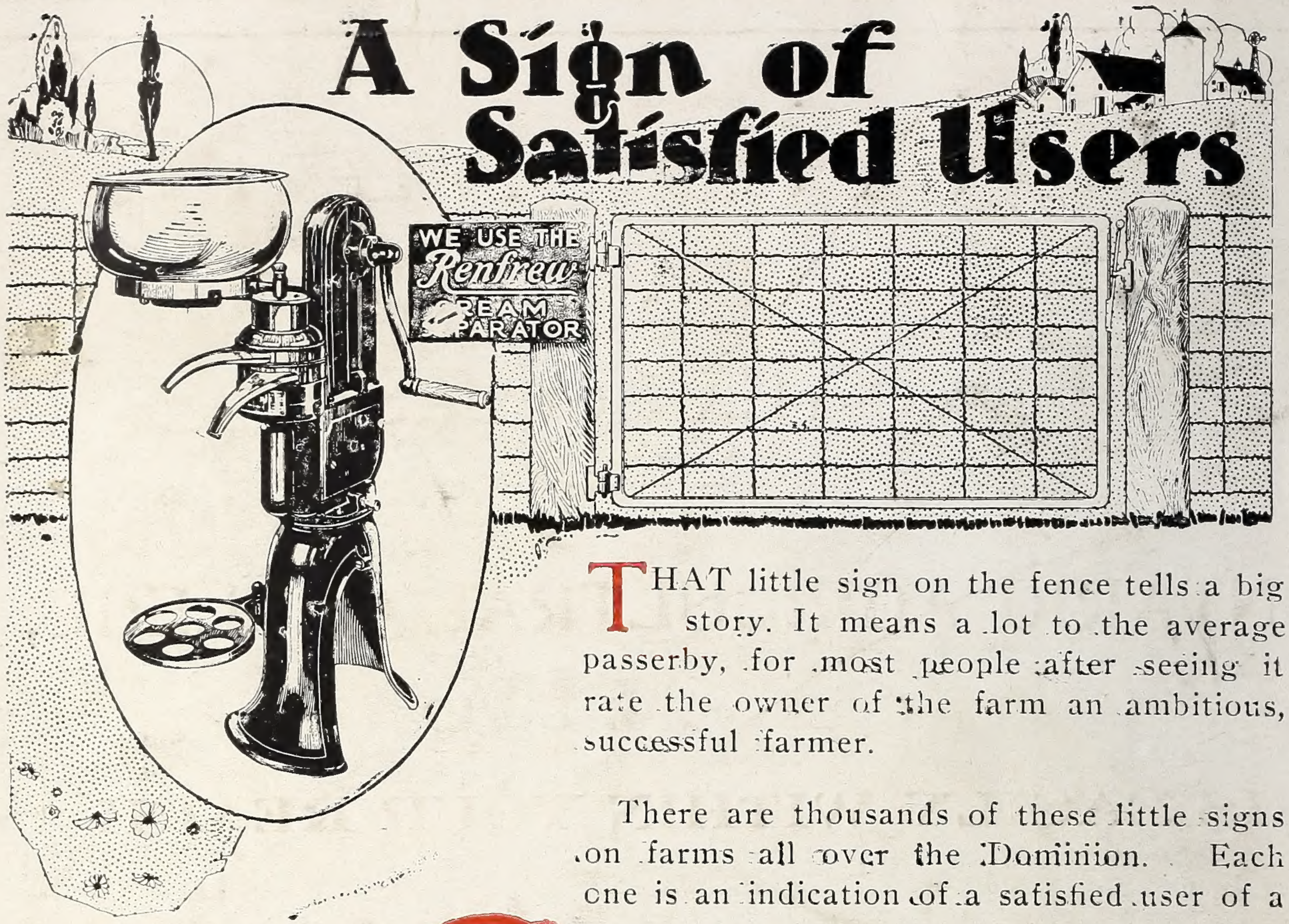
The tuition fee for Ontario Students for two years is only $20.00 per year, while board and room in residence is obtained at $5.00 per week.

A portion of the cost during the first year is defrayed by work on the farm and the various departments.

Students wishing to take the full Four Years' Course for the degree of B.S.A. conferred by the University of Toronto, do not require matriculation standing. Students are accepted for this Course if their standing on second year examinations warrants it.

College Opens September 17th, 1920.

Write for a College Calendar.



A Sign of Satisfied Users

THAT little sign on the fence tells a big story. It means a lot to the average passerby, for most people after seeing it rate the owner of the farm an ambitious, successful farmer.

There are thousands of these little signs on farms all over the Dominion. Each one is an indication of a satisfied user of a

Renfrew
CREAM SEPARATOR

—the Separator that on Government Dairy School tests gets 99.99 per cent. of the butter fat.

It is the separator with the interchangeable capacity. Renfrew owners are never worried about increasing their capacity. They simply order a bowl of the size they will need—450, 650, 800 or 1,000 lbs.—with attachments. We make an allowance for return to us of the smaller equipment. The cost of making this change is very moderate.

All Renfrew machines have the same size of frame, which is strong enough for the largest capacity. Thus, a separator can be changed from 450 to 1,000 lbs. capacity without increasing the strain on the machine.

It is the only separator having the prefected curved wing centre-piece that distributes the milk to discs without whipping. That means solid, better-priced butter.

The anti-splash milk-can prevents milk splashing out on the floor, and is at a convenient low height for pouring in milk.

All working parts are enclosed in oil-tight, dust-proof housings. The Renfrew is self-oiling and requires re-oiling only four times a year. The crank is just at the right height for comfort.

The Renfrew Cream Separator, built in Canada by Canadian workmen, and manufactured with Canadian capital, owing to tis solid construction, lasts a lifetime, and costs next to nothing in repairs or replacement of parts. Renfrew users estimate that the Renfrew is a 33 1-3 per cent. better investment than an ordinary separator.

Write for our catalogue and Dairy School tests of the Renfrew.

THE RENFREW MACHINERY CO., LIMITED

Head Office and Works,
RENFREW, ONT.

Branches: MONTREAL, P.Q. SUSSEX, N.B.
MILWAUKEE, U.S.A.

Other Lines: Renfrew Handy Two-Wheel Truck Scales, Happy Farmer Tractor, Renfrew Oil Engine.